# COMPUTERWORLD

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Rolm wears Big Blue

stamp after reorganization pull the once-entrepreneurial com oany into the IBM corporate fold. Page 61.

# Apple-DEC plot gels

Firms to lay out framework for linking systems

BOSTON — Apple Computer, Inc. and Digital Equipment Corp. are expected to unveil today the

underpinnings of a strategy for enabling users to easily swap files, access databases and utilize peripherals between both companies network environments.

In briefings to analysts last
week, DEC and Apple said they
would provide third-party and

would provide third-party and corporate developers with a blueprint of plans first an-nounced eight months ago. The two firms will outline a set of base services that include soft-ware specifications, application

er basic protocols.

These developer's aids will serve as the foundation on which to build advanced applications such as Apple Macintosh-to-DEC VAX SQL services, accord-

ly to buy IBM until the clones

are able to prove their worthiness and compatibility While overall sales

slowly rising for IBM's MCA-based Personal System/2s, IBM

is not likely to surpass its 1987
Personal Computer AT sales
with MCA sales this year. Meanwhile, some PC-compatible ven-

will begin providing these base services 12 to 18 months from now. It will take at least four months for developers to write applications based on the serstyst said. The formal amorement will be made front of an audience of 150 to 300 programmers before the Macworld Expo/Boston confer-

Directions included
The integration tools represent
a clear attempt by Apple to exert
some control over the booming
Apple-to-DEC communications
market by providing a set of
standard guidelines and tools.
The Cupertino, Calif., worksta-

The Cupertino, Calif., worksta-tion vendor has taken similar steps in the Apple-to-IBM mar-lert (see story page SR/6). While products already exist that the Appletalis to Decnet, the new specifications are expected

#### Micro Channel tuned out BY ALAN J. RYAN

Users anticipating a flood of IBM Micro Channel Architecture-

Dell Computer Corp., which was the first company to announce it was building a Micro Continued on page 85 compatible computers by the end of this year should instead end of this year should instead begin preparing for a drought. Acceptance of MCA has been slower than originally anticipat-ed by vendors that were ready to dive into the potential profit pool created through IBM technol-

# Aging Univac system triggers O'Hare air jam

BY JEAN S. BOZMAN CHICAGO - An 18-year-old redar-tracking system broke down last week at O'Hare Internation-al Airport, the world's busiest,

its capacity. The same tracking system is also used at 22 other major sirports and at 39 smaller sirports nationwide.

The breakdown in the Univac computer — the Automated Ra-dar Terminal System III known as ARTS III — forcod O'Hare

Attention passengers exputer breakdown at O'E the day's flights on Aur. I

Number of aircraft delayed 1.000 Loss than five miles Specing on Aug. 1.

Average delay on Aug. 1

of aircraft and resorting to paper light plans. The incident came flight plans. The incident came just days after the Federal Avia-tion Administration awarded IBM a \$3.6 billion contract for an advanced tracking system to be implemented in the 1990s. In the incident

vac-based tracking system, made by the former Sperry Corp, and first installed in the 1970s, came down while FAA technicians

plans, radio mess flight rules to ma 2,000 takeoffs 2,000 takeoffs and landings, delayed nearly half the fig traffic at O'Hare Aug. 1, affecting a total of about 1,000 jet Controllers used a backup pl that spaces plane.

# Loopholes, apathy open gates to hackers

BY J. A. SAVAGE

Twenty four-year-old Marcus Hess would sit at

his terminal in Hannover, West Germany, and read data from military, defense contractor and university computers all over the U.S. Hess was clever and careful. He gave himself sys-tem manager privileges and covered up his audit trail. For at least one year, he attempt-ed access to hundreds of com-

being watched and his every command recorded. He finally

got caught in a trap set by computer actions researcher Clifford Stoll at Lawrence Berkeley Laboratory. Stoll tried des-perately to get Hess caught and put out of busi-ness, but federal assessment

Hess was not prosecuted for the data inva-sion. And while his computer was seized, it was returned to him, with the data unexamined, by

est German authorities. This case is a textbook example of how h governing computer crimes are few and vague and interest in enforcing them is modest. "The mind-set of the inves-tigators is that they don't want

to investigate computer because they don't under it," said Jim Christy, as chief of computer crime at the U.S. Air Force Office of Spe cial Investigations in Washin ton, D.C. In the Hess car

Christy added. According to Christy, ex

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All the fixin's. The Blue maintenance umbrella will now cover non-IBM shops, providing a one-stop repair option to relieve the burden of dealing with multiple maintainers. Page 5. Summertime overtime. Ashton-Tate is scrambling to debug

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MARTY GRUHN SEERA GROUP, INC.

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# Sun's Cooke latest chief to hang up warbonnet

BY JAMES CONNOLLY

RADNOR, Pa. - Another wellknown MIS director changed ca-reer paths last week. Sun Co.'a Dudiey P. Cooke revealed plans to accept a voluntary early reto accept a voluntary early re-trement package offered to Sun-executives in the wake of corpo-rate restructuring and a decision to spin off Sun's petroleum ex-ploration and production groups. Cooke, 56, said he will retire Doc. 1 with plant to establish a management consulting firm fo-

ing on information systems. eneral manager of Sun's Infor-nation Systems Division for six ears, Cooke has been active in fIS-related professional organi-MIS-related professional organi-zations such as the Society for Information Management and has participated in activities such as the Gartner Group Excellence

in Technology Award C Cooke said Sun will not re place him and will eventually shift most of its 200 corporate MIS staffers to business groups. Sun offered executives early retirement in the wake of a July move to spin off most explora-tion and production, thus elimi-

nating most corporate positions.
"We've built one of the best
organizations in the business,"
Cooke said, describing the MIS group that he took over after 20 years at Sun and seven years at Exxon Corp. in a variety of management jobs involving corp rate troubleshooting, finance

materials management, market-ing and plant operations. One of his assignments was a six-week project in which he oversaw the spin-off of Sun's external data ts was a six-week processing systems operation.

Reflecting on his current group's accomplishments, he



exed, "We are doing more wo He said Sun had 1,111 system employees when he started with employees when he started with the company and now has 520, even though systems use has grown 25% per year. Cooke, who said the progress made in communications tech-nology has surprised him even

more than the gains in computer technology, offered as advice to those seeking a top MIS posi-tion: "The biggest asset you can bring to the information systems side is to know the business. You have to he able to marry the available technology with what the business person needs."

#### SQL Server to roll sans front wheel

BY STEPHEN JONES

REDMOND, Wash.— It looks like the SQL Server database engine will roll off the assembly line this year as promised, but it is still unclear when a critical series of sporty front-end applications will make it to the showroom.

Users who have taken a first ek at SQL Server said the code peck at SQL Server said the code is fairly clean and contains no major obstacles that would pre-vent the product from hitting its fourth-quarter shipment dead-ine. The technology for SQL Server was incensed by Micra-soft Corp. from Sybase, Inc. Astro-ton-Tate Corp. joined the development effort last January. The compenses had originally

ship in the second half of this year, but a source close to Mi-crosoft said that deadline has crosort sad that desidate has been surrowed down to the last quarter of the calendar year.

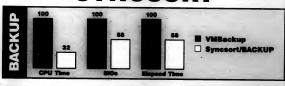
Microsoft is expected to start a widespread beta-test program by distributing early copies of the software to developers at Comdex/Fall '88 in November, rces close to the develop

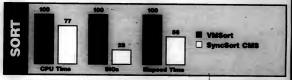
Solo perfermence
While the code for SQL Server
seems to be relatively free of
bugs, the product could find itself
white the time if shins.

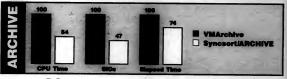
at the time it ships.
Ashton-Tate has made t biggest pledge to support SQL Server. The company is building a version of its Dbase IV that will

act as a front-end database and use SQL Server as a powerful back-end database engine. "SQL Serves has a respected to kernel, but there is a real need to develop good applications and development tools, and the good front ends are not out there yet," said one user who has ex-amined a cogy of SQL Server.

# VM PERFORMANCE FROM SYNCSORT









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# Flood system hopes to keep N.J. dry

BY ELISABETH HORWITT

PARSIPPANY, N.J. - A computer network flood-warming pater network flood-warning system that designers hope will save lives and property was situ-ated here last week, although critics said the \$1.1 million in-vestment will offer little relief to the flood-ravaged Passic River Basis unless local agencies are prepared to act on earlier warn-

red one of the most Considered one of the most flood-prose areas in the nation, the Passaic River Basin in north-ern New Jersey has lost an aver-age of \$84 million annually in property damage because of flooding. An April 1984 delage cost four lives and \$350 million

in deninger.

The warning system, reportedly the most advanced in the U.S., is expected to reduce semi-al property losses by more than \$8 million. It will accomplish this by reducing from six to two hours the time it takes the National Weather Service to warn

affected communities, according to the U.S. Army Corps of Engi-neers, which initiated and funded Passaic system is made up of Compaq Computer Corp. Desk-pro 286 personal computers that

tion of warnings will only give lo-cal agencies "more time to drink coffee before the flood arrives"

nental Protection "Right now, (the system) is

the most expensive toy they've ever given me. Without that last link, we've wasted a lot of mon-"be said. ement contingency plans so ey can take effective action as

nortnern New Jersey.

A network of 31 rain gauges throughout the basin collect rainfall and food-level data and send it via UHF radio links to the Deskpro computers, which can then distribute the information. to terminals at local agencies throughout the flood basin. ord travels The data also travels by Contel Corp. ASC satellite links to Deskpro computers at National

Designo computers at National Weather Service offices in Trea-tion, N.J., Philadelphia and Har-risburg, Pa. The weather service analyzes the data and sends warnings, weather watches and bulletins not only to affected areas but also to pertinent down-stream communities and offices such as the U.S. Geological Sur-

wey and the Department of Environmental Protection.

A Dealpro reading at the Mortin County energies; or efficient as a gateway between the four-county UHF network and the satellite links out to the weather service's Dealpros. To ensure that crucial information continues to flow even during violent storms, Serray/facto implementated a second Dealpros site as a backing patientsy.

reside in emergency manage-ment centers located in the four most flood-prone counties in northern New Jersey.

This set-up, which began linited operations in early June, got an unexpected test run when a recent lightning storm took out the primary Designon gastern took out the primary Designon gastern. As noon as the backup system stopped receiving transmissions from its countempter over the UHF network. It took over operations were also because the properties of the properties

The system will cost approx mately \$1.1 million, with annu

maintenance and operation costs of approximately \$277,000. It could be incorporated into a \$447 million flood-control proj-oct proposed by the Army Corpa and currently being reviewed by Congress. Senter With David A. Luck

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nation Witness sensory Hamilto Nell Margolio Alen J. Ryen

Macr Gover Copy Belivers
Marthe E. Buch
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conce before the thood arrives unless such organizations have implemented flood mitigation systems to respond to the infor-mation more quickly and effec-tively, said Clark Gilman, chief of floodplain management at the New Jersey Department of Envi-

as they know which areas are likely to be affected, said Sam Tosi, an Army Corps deputy district engineer who is also chief of planning for the flood warning project.

Designed by Sierra/Misco.

# O'Hare

a year-long FAA effort to

of a year-long FAA effort to boost system capacity in all 62 ARTSIII systems nationwide. The trouble at O'Hare begun just after midnight while FAA technicians were testing soft-ware that allows ARTS III to track more sircraft. After early-morning testing was complete, they had trouble restarting the older software.

they me a cross-odder noftware.

"The technicism took the system down to lead the new software program and to test it, but they never got the whole thing loaded," explained Stan Swallow, a spolenum at the Swallow, a spolenum at the Swallow, a spolenum at the control of the standard moved the identification labors the radar scopes.

What followed was a morni

What followed was a morning with the usual complement of hundreds of arriving flights — except that O'Harv's radar scopes showed radar blips but no identification. "Traffic coetrol-lers could verify the flight's ideniers could verify the flight's iden-tification number [only] by ask-ing the pilot to press a transponder button on the sir-craft, "said Teddy Burcham, sir-traffic division manager at the FAA's Great Lakes region. Pushing the transponder button

shing the transponder button used a bright symbol to appear caused a bright symbol to appear ment to an aircraft's radar image. What went wrong? O'Hare technicians were frustrated by their anability to pinpoint a hard-ware failure that occurred dur-ing the overnight testing. When technicians determined that a

off-line. Hours later, consultants were flown in to help solve the problem. It was not until 8 p.m., when traffic slowed again, that the malfunctioning board was

No choice FAA officials said they have little choice but to continue enhancing the current ARTS III for the next five years — the time it will take IBM to develop and deploy the Advanced Automation Systhe Advanced Automation Sys-tem, or AAS [CW, Aug. 1]. Until then, the ARTS III will continue to guide all air traffic onto the na-tion's runways, FAA spokesmen

said last week.
"The first new airport-to computer complexes are sched-uled for delivery in 1994," said Fred Farrar, an FAA spokesman in Washington, D.C. "We believe (the ARTS III computers) are going to be adequate in the meantime." Even so, O'Hare's

measume." Even so, O'Hare's changeover to the improved sys-tem software came late in the ARTS III upgrade project, Bur-cham said, adding, "O'Hare is not the place to be testing this kind of stuff." The FAA has plans to build an interim hardware system to as

sist or replace the aging ARTS Ills, Burcham said, Meanwhile, be said, the FAA plans to shift more of the radar-tracking work load to 20 regional FAA tracking centers. During the last year, these tracking centers have been outfitted with IBM 3083 computers. In the early 1990s these IBM 3083s are to be replaced by the new generation of IBM AAS aircraft control sys-

Memory in the ARTS III mul tiprocessor units has been ex-

panded greatly since their intro-duction, in part to deal with increased air traffic.

Built to defer specifications, ARTS III comput-ers are designed to be fault-tol-erant. They can reroute mes-sages through redundant circuits if necessary, the FAA said. The systems are main tained by the FAA, not by Univac successor Unisys Corp. A source within Unisys who is familiar with the ARTS III emin-

ment said the O'Hare break-down was highly unusual and that similar ungrades had gone flawlessly at other airports. In spite of that claim, a spokesman at the National Transportation Sofety Beard said last week that it was con-ducting an investigation of O'Hare and its aging control sys-tems and its aging control sys-

Washington Bureau Chief Mitch Betts contributed to this

# Grounded in the East

CHITCHE IN THE SEASON TO APPROVE THE SEASON TO SEASON THE SEASON TO SEASON THE SEASON TH

non our neverance. Controllers feered normal levels of incom-ing pinnes would overload the finished system.
By 8 n.m., with DARC working and the EBM 2003 off-line, its traffic under the control of adjoint contars was restarted and spaced out. By 8:20 n.m., the Booton center's host EBM computer had been restarted with the original, unschanned NAS software, and normal traffic conditions returned to the Eart Coast at 9:20 n.m.

JEANS, BOZMAN

# IBM service plan to cover non-IBM gear

#### BY STANLEY GIBSON

RYE BROOK, N.Y. - Stretching its ser vice umbrella to cover more of its custom-ers, IBM said last week that it will provide one-stop maintenance for users who have non-IBM equipment in their shops. The program was designed for users who want to hand over to IBM the burden

of dealing with several maintenance ven-dors. Under the plan, called Technical Services Management, IBM will subcon-tract with other vendors for service and etact them when a problem occurs.

IBM has offered the service to some

to the control of the

The one-stop shopping concept is simi-lar to a program that Digital Equipment

T THIS POINT, it is not practical to utilize IBM personnel to service every piece of non-IBM equipment."

JOHN PATRICK

Corp. instituted in 1983 and that third-party maintenance providers have out in

ce in the past several years. Jim Paster, head of IBM sales at Con-Jim Paster, nead of 1884 sales ar con-ol Data Corp.'s Engineering Services, aid the IBM program is targeted minishy larger accounts. He said CDC could into by acting as a subcontractor to main-in non-IBM equipment. However, he needed that CDC could also lose busis if IBM tends to push other main

88 II IBM tento to prain otobs manne-nce vendors out of its accounts.
"I see no added value for that for an ac-unt with any degree of sophistication," id Don Goodepeed, president of Con-id Don Goodepeed, president of Con-ter Maintenance Consultant Ltd. in

nite Plains, N.Y. Technical Services Mana

ensuring a high level of systems a vailabil-ity for the customer," according to shall IBM announcement

nent to the IBM mt and is not ofnance Agre

Patrick said there is a scale of prices for the Repair and Maintenance Coordior the Repair and Maintenance Coordi-ation options, depending on the different inds of equipment covered. He said the ervices Management

ig to each customer's

ever, IBM was unable to n

prices for any of the services. An IBM spokeswoman said the scale of prices is not yet publicly available. ot yet publicly availance.

For the most part, BM will not physishly service non-IBM equipment but siber will call the vendor of that equipment or a third narty. An exception will be est or a third purty. An exc made for minor peripheral equipms such as paper feeders that attach to in printers, Patrick said.

Equipment such as non-IBM person computers and printers will be exchange

service providers for non-l but not for third-party a

pment, even at a custom It's been a long time or shopping. Now IBM will offer x. can't be as good as calling the m nance vendor directly," said Joe h of William Marion Co. in Hacker N.J., an IBM mid-range leasing and



# AS/400 draws IBM diehards

Because Focus sent a que

BY STANLEY GIBSON

WEST HARTFORD, Conn. ost customers who are plan-ig to purchase IBM's Applicaon System/400 are System/36 nd 38 users in search of more er, according to a recently spleted study by Focus Re-rch Systems, Inc., located

Focus gleaned responses from 95 users who said they plan

ing 95 companies plan on are high on the lis ng to buy the IBM AS/400, top-end

showed users are gravitating toward more powerful rack-mounted versions - the

the following:
• In 81% of the cases, the
AS/400 will replace an existing

to buy one or more AS/400 sys-tems. Most users said they plan to port their existing applica-tions to the AS/400. . In 81% of the cases, the uses tionnaire to current computer did not consider another vendor or machine than the AS/400. systems users, the study does not deal with whether first-time Of the AS/400s on order, 87% outer users might be at-ed to the AS/400. IBM has will be programmed in RPG.

Sixty-three percent of the AS/400s will perform financial said it is aiming the system in and accounting tasks.

Of all respondents, 68% are rge part at users with little mputing sophistication.

Focus said the study revealed

porting existing applications Although 13.7% said they plan lete the convers two to three days, 24.2% said

they expect it to take more than Seventy-seven percent of un-ers with orders said they do not plan to add an additional AS/400 in the next 24 months. Consistent with the additional power requirement, the study



AUTION PROVIDED BY FOCUS RESEARCH SYSTEMS, INC.

AS/400 Models B30, B40, B50 and B60 — rather than the B10 and B20 pedestal models.

been waiting for the AS/400 an-nouncement and the additional wer it would bring, he said. Brown said users seem enti and B20 pedental models.

The conclusion that System;35 and 38 users who want more power will be the first to-order the AS(406 is not surprising, according to Focus' Scott Brown. The System;36 and 38 had not had significant upgrades for two years; many users had re so th

stic about the AS/400 — far customers were for more so than customers were for IBM's 9370 announcement. "We were able to find about 100 buyers in the first month after the [AS/400] announcement," be added.

# Masscomp buys Concurrent

Merged company to target top real-time slot

BY NELL MARGOLIS

BOSTON — With their stated target the No. 1 spot in the surget the No. 1 spot in the worldwide real-time computing market, Massochusetts Comput-er Corp. (Massocmp) and Con-current Computer Corp. are joining forces to create a \$350 ion company armed with it both vendors claimed will

the \$4.8 billion niche.

The merged company's arrival will also mark the departure of Norwalk, Conn.-based giant Perior-Elmer Corp.—now the majority shareholder of Concurrent—from the computer industry.

Under an agreement already proved by the board of each mpany, Masscomp will pur-ase Tinton Falls, N.I.-based ocurrent's outstanding shares 82% of which are held by Per-— 82% of which are held by Per-tion-Elmer – for \$20 a share, or a total of \$230 million. Pending Scartties and Eachange Com-mission approval and the suc-cessful completion of a \$175 mil-lion debt-based financing, the deal is set to close by Oct. 1.

rent President and Chief ve Officer James K. Sims ome president, CEO and ome president, CEU among the combined com-venture capitalist and member Russell Planitzer, acting president and CEO of Masscomp since the resignation of August Klein ear-

While "it would be a little ch to read in a tidal wave of much to read in a udai wave of [computer industry]: mergers and acquaitions," said Jeffrey Canin, an analyst at San Francis-co-based Hambrecht & Quist, Inc., "I see this as one of more



such synergistic deals to come."
Under the agreement, sever-

Under the agreement, severathings happen:

Masscomp gets critical mass.
The smaller of the two companies, Masscomp had \$75 million in 1987 sales and \$6.3 million in 1987 sales and \$6.3 million in 1986, but the firm sufred a steep drop in net earn ings in its most recently reported 1988 quarter. Concurrent
reported more than 100%
growth for the first nine months
of its current fiscal year, as well as a 13% revenue jump to \$201.9 million. Said Planetser: There's a tyranny of size in the computer business; you have to be at least a \$400 million to \$500 million company before you can · Concurrent gets critical attributes — breadth and Unix, said Vicki Brown, an analyst at Fra-mingham, Mass-based Interna-tional Data Corp. Beloved of the scientific and engineering mar-ket but inherently unsuited to real-time computing, Unix is a priority at Concurrent; it is a reity at Masscomp. In addition.

product lines, focused on the w-end and mid-range real-time arkets, will fill in a gap in Concurrent's mid- to high

Commented IDC's Brown "No customers of either compa-ny are going to be harting be-cause of this merger."

Perkin-Elmer gets out. The company, which has already agreed to tender its 9.4 million current shares to Mass ap, has made no secret of its desire to exit the computer busi-

equipment and analytical instru Notwithstanding the fact that ascomp, much the smaller of the two com ies, is tect the acquiring party, the entity that emerges from the merger will be called Concurrent Comster Corp. The choice of name terms inevitable: After the ac-

quisition, there will not be much "Mass." in Masscomp. The new Concurrent will be headquartered at the current Concur rent's Tinton Falls home base. Also, is order to gain maxi-mum efficiency, Planitzer said, 220 of some 700 Masscomp jobs, largely in mar

have been tagged for eli-tion. More cuts will follow fying pockets of inefficiency makes its report Planitzer said

#### CSA loophole in IBM price hikes?

BY STANLEY GIBSON

IBM may have unwittingly given uners an easy out from its Corpo-rate Service Amendment (CSA) rate Service Amendment (CSA) as the result of a maintenance price hike announced qu

In the low-key announce-ment, IBM raised maintenance costs on 3090 base and 3090 E models by 5%, effective Nov. 1. ed upgrade prices from 3090 base models to 3090 E models b sounts ranging from \$75,000 \$225,000, effective Dec. 1. The announcement was ma

concurrently with the rollout of the ES/3090 S models but was not included in the formal pre sentation or in materials given to the oreos or analysts.

It was also not mentioned in a general announcement of price increases made two days after the 3090 S rollout. That an-nouncement boosted the price on many pieces of equipment by 5% and raised maintenance fees by 3%. At that time, IBM said all 3090 models were exempt from 3090 models were not mentioning that maintenance on 3090 base and E models had been hiked two-thys-serifer.

Together with maintenance price hikes made earlier this has increases could let

CSA, a discount program with extract terms up to five years tenance costs at a site rise by more than 3.5% in a year, a cusmore than 3.5% in a year, a cus-tomer may withdraw from the program without notice or pen-alty. Otherwise, pulling out of the program without neveral months notice entails a charge.

> Donald Goodspeed, president of Computer Maintenance Con-sultant Ltd. in White Plains, N.Y., calculated that a client's The client's aloop includes one 084 and one 3090 Model 400 nd a variety of disk drives, tapes

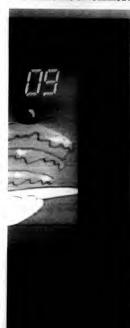
and printers. Maintenance prices on 3084 CPUs were ed by 7% early this year. Responding to a Computer-sortal inquiry, IBM reiterated its policy allowing users to with-draw without penalty should

In another turn, an IBM pokesman said the 3080 main-ame line was excluded from the 3% maintenance price boost, even though that exclusion had not been spelled out in the price

Had those systems been hit with the 3% increase in addition to the earlier 7% boost, 3080 customers could also withdraw from CSA without pensity. The CSA withdrawal charge is waived if maintenance on a single piece of equipment rises by more than 7% in a year. "It's so typical of IBM, when

they announce a new product, to raise maintenance on older products," said a ma

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A government and industry vertice in Tushind plans to take
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#### **Bell Atlantic LAN manager**

8-01 ATTORTIC LATE STEATING SET Bill Attantic Corp. said last week that it will add network man-special features to its central office-based LAN (CO-LAN) cat-ering, beginning this fall. The industry's first CO-LAN man-spensest hervice will allow customers to assign and change passwords, remove and restore workstations and generate management reports, Bell Atlantic claimed.

#### DEC reaches out to developers

DEL TWO CHARLES OF THE GROWN PAPERS OF THE GRO

#### Oracle auditor missing

While Oracle Corp. acknowledged it had more than one suditor working on its benchmarks of Oracle with Transaction Proowing on its benchmarks of Oracle with Transaction Pro-ssing Subsystem, amonaccol Joyl T.B. it remains to be seen bothe auditor was for its mainframe tests. Christopher M. P. ried the Gatter Gross, Inc., who was pointed out as po-le co-auditor with Tom Sowyer of Codd and Date Consulting roug, usefit was thim. "We discussed the possibility of its, but the Gatter Group declined after deciding bench-arting was not consistent with its research business.

Apple pulls even with IBM
For the first time is more than three year, IBM posted in
the pull of the pu

#### Lotus ballouts continue

LOTUS SCHOOUTS CONTINUE
Lotus Development Corp. Lot two employees last week. Director of Sales Distribution and Flanning John D. Shagour,
jumped ship to join reseller Corporate Software, Ro. as vicepresident of product marketing. Press pipeline Greg Jarbox
will lawer his post as band of corporate communications to rejoin the media. Jarbox will serve as head of media relations for a
new computer publication.

### Users doubt sincerity of AT&T. OSF union

BY ROSEMARY HAMILTON

Suspicion bubbled to the surface in the Unix market last week that the possible union of AT&T and the Open Software Founda-

mise in name only.
"I think it's all noise," said "I think it a air none, some Marty Gruhn, vice-president of the Sierra Group, Inc., located in Tempe, Ariz. "Nothing of any benefit is going to come out of this walts," Gruhn said of the ne-

gotiations. ed last week said it would be diffi-cult and time-consuming at best for both of the parties to work together toward a single Unix

As a result, analysts questioned whether the real purpos behind the expected plan to unify the bickering factions is to end the negative publicity that has surrounded the Unix rivalry.

In their best interest AT&T and the OSF continued to send signals last week that they will join forces. In a speech b fore a Uniforum audience, Bill O'Shea, executive director software systems at AT&T, stressed that it is in both parties' interests to work together on

"We are trying to reach an ar-rangement," O'Shea said. "If OSF is true to its principles and as long as they work within (the Unix] community, there's little chance for two Unix atandards. I don't believe either of us can af-ford not to."

# cifics. "If they do actually co

"If they do actually compro-mise, it would have to be a sub-stantial one, like one saying they'll support the other's ver-soid Eather Dyson, editor of "Release 1.0," a newsletter

# Posix enmeshed wrangle? Page 23.

ublished by Edventure Hold-

ngs, inc.
However, users said that although they are not sure how sincere the compromise effort is, it is at least a step in the right di-

Better possibilities
"It seems there's more potential
(for a single standard) if AT&T is
part of OSF than if they're not
part of it," said Dean Allen, vicepresident of information and administrative services at Locked Corp.
Added Gary Handler, a vice-esident at Shearson Lehman atton, Inc.: "I think anything

that works to clarify the curre ketplace."

But analysts said it will be a tall order for AT&T and the OSF to establish common ground while keeping true to their exist-

say AIX is the porting base," Fiedler said. "That would be the most benign way of doing the whole thing."

At the Uniforum/DC trade show last week, AT&T again stated its goal of delivering by next year Release 4, the merged Unix, that it said will blend its System 5 with Microsoft Corp. 2 Xenix and Sam Microsystem, Inc. 2 implementation, which is based on the University of California at Bertelely 2 version of

Meanwhile, the OSF re ommitted to its plans to build or yet-to-be-announced version of

Not the bod guy
"What's really going on in AT&T is trying to change the fact that the OSF formation made them look like the bod guy," said David Fiedler, editor of "Unique," a Unix newsletter published by Infopro. Systems, located in Res-There was little agrees

among analysts last week on what plans the OSF and AT&T could implement if they do de-cide to compromise with more

search at International Technol ogy Group in Los Altos, Calif. said one option would be for the two to develop an interface that would link AT&T'a Unix System

by deliver.

But Dyson said an interface would make no sense. "It's sort of crasy to develop something else on top of what they're doing," she said.

Fiedler said the two could possibly reach a decision to use AT&T's Unix as a base on which AIX will sit. That way, AT&T can say its Unix is the kernel and IBM can

# Apple to support Posix standard

#### BY MITCH BETTS

WASHINGTON, D.C. - AD ple Computer, Inc., trying to stay in the good graces of gov-ernment buyers, said last week that future versions of its

control of the contro

Apple joined a growing list of industry heavyweights, namely IBM, Digital Equip-ment Corp., AT&T and the

Open Software Foundation that have said their forthcom-ing Unix versions will be Po

Becoming a baseline
"The world is clearly converging on Posiz as the baseline,"
and Bruce Weiner, president
of Minderalt, Inc., a Senta Clara, Calif.-based consulting
and software testing company.
The National Bureau of
Standards is expected to issue
a federal Posic standard soon
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tained.

The draft of an interim ver-sion was published April 29, and some vendors are already complying with it (see story page 23).

Poex defines a standard in-terface between the Unix op-

erating system and applica-tions software to foster applications portability at the source-code level [CW, March 16, 1987]. Eventually, Posts may become a complete stan-Roger M. Cooper, head of

information systems at the U.S. Department of the Trea-sury, said applications porta-bility is important because the bility is important necture the government a competitive procurement rules guarantee that agencies will have numer-ous brack of hardware. Cooper, a featured speaker at Uniforum/DC, listed four

major Unix procurements— at the U.S. Air Force and Army, the Treasury and the U.S. Department of Agricul-

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# Don't bet on OS/2 Extended — yet

BY DOUGLAS BARNEY

It is the first major product written from the ground up for IBM and Microsoft Corp'a OS/2 and the bedrock of IBM'a Personal Computer software strategy. But so far almost nobody seems interest-ed in buying the week-old IBM OS/2 Ex-tended Edition.

tended kidition.
"I haven't had anybody asking for it."
said Carlos Frum, president of North-brook Computers in Northbrook, Ill.
Then again, dealers are not going around praising sales of the base OS/2, ei-

ther. Competitors are also not stealing IBM's thunder with sales of next-genera-tion PC database management system products, most of which have yet to ship, in fact, the database and OS/2 wars have yet to begin.

Stumbling blocks
Holding back OS/2 Extended Edition is
the wait for the Presentation Manager in-terface and new local-area network sup-port; a dearth of OS/2 Standard Edition ales; a lack of applications; and persistent onfusion over OS/2 Extended's MIS

cost of implementing the operating sys-tem that calls for a high-speed PC, nearly 6M bytes of expensive random-acce memory and at least 30M bytes of har

disk storage. Despite the current lack of sales inter-cest, a debate over the ultimate role of OS/2 Extended Edition rages. For Inter-national Data Corp. Vice-President Wil-iama Zachmann, OS/2 Extended Edition in going nowhere fast. The reason? People are beginning to realize it is just not up to suff with the rest of the industry, accord-

The flat-file Q&A DBMS from Syman-tec Corp. can best the plints off the data-base portion of OS/2 Extended, Zach-mann said.

Slow-burning fire
Others webeneatly disagree and see the
product as a slow but eventually highly
successful burner. In fact, disparaging
comments were also made shout IBM's
DBZ when it was introduced in the sunmer of 1986. The success of DBZ has
since changed the face of the mainframe
offware industry.

software industry. "Critics don't understand the technology, the internal architecture. It has absorbed to the control of the Corp. VT terminal envalation. IBM also views OS/2 Extended Edition

IBM also views CO/2 Extended sension as systems software rather than applications software. "It contains the basic building blocks. It is meant to provide an application platform," explained Pat Motola, OS/2 Extended Edition systems

manager.

IBM has positioned OS/2 Extended as IBM has positioned OS/Z Extended as the PC corneratone of its distributed data-base architecture, saying that DB2, SQL/DS and the Application System/400 DBMS will reach out from the top while OS/Z Extended will grow up from the bot-

tom.

Many critics have focused on IBM's set of front-end tools, which analysts and some users have said are far weiker than competitive products. But what they may not see in the foundation upon which third parties can add an impressive array of tools. Bordand International's Paradox, wheley praised for its interface, is one

wodely praised for its interface, is one such product.

In fact, OS/2 may live or die by the commitment of third parties, which has been scart. So far, many database and communications vendors have been rai-tling their nabres about competing against, not supporting, OS/2 Extended Edition.

The wedling poel
While analysis argue and vendors by low.
While analysis argue and vendors by low.
corporations have almost unanimously
taken a wait-end-see attitude toward
OS/2 Extendor. They are waiting to see
how good it is, how much support it gains
and how it worth with existing pytems.
Christel Schwab & Co. is still wedling
through the mount have followed to the con-

and not in worth with a densing systems, and the through the more than 100-years (OT). Sendert Botton development is and has Ada, but the send of the

three years away, the OS/2 Exter \* AUGUST 8, 1988

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# Trade bill tickles high-tech fancy

Industry giants support omnibus, but sanction clause worries some

BY MITCH BETTS

WASHINGTON, D.C. - The 1,000-page trade bill passed by the U.S. Senate last week mod-ernizes U.S. trade laws with pro-visions aimed at helping the comand communications industries sell more products abroad and protect their copy rights and patents.

Companies on record as s porting the omnibus trade bill in-clude IBM, AT&T, Digital nt Corp., Intel Corp. and NCR Corp., as well as trade associations, such as ADAPSO, that represent the software in

However, A. G. W. "Jack" Biddle, president of the Comput-er & Communications Industry Association, said he is concerned about a time bomb within the bill: mandatory U.S. sanctions against foreign firms that violate sport controls in the future, iddle said he is worried that harsh treatment of foreign comsin treatment of foreign con-ties will spur retaliation finst U.S. exporters and that "could destroy high-tech

Key provisions Industry lobbyists said they are pleased with three other provi-

. The bill relaxes export controls for many widely available high-tech products, such as peragnition products, such as per-sonal computers, when the desti-nation is Japan or Europe. The number of export licenses will be cut roughly 40%, and the U.S. Department of Defense role in limited to national security con

for greater U.S. access to foreign telecommunications mar-kets. If the talks fail, then the president must impose trade sanctions.

• The pres lent is required to retaliate against countries that fail to protect U.S. copyrights and patents. Also, companies no longer have to prove economic injury for the gover

Chonges loueded
Oliver R. Smoot, executive vice-president of the Computer and Business Equipment Manufac-turers Association, praised Con-gress for making the technical changes in U.S. trade policy.

"We think it points the way ward a different attitude toward export controls, indicates a willingness to get serious about imports that infringe on our intellectual property rights and gives high priority to negotiating the removal of trade barriers in telecommunications," Smoot

The Senate passed the bill by an 85-11 vote, following approval by the House of Representa-tives last month, President Reaversion, is expected to sign this

The trade bill has a variety of little-known provisions that may affect the computer industry, including the creation of a 12-member advisory group called the Competitiveness Policy Council and the transformation of the National Bureau of Stan-dards into the National Institute of Standards and Technology. Furthermore, buried in the

Furthermore, ourset in use bill are sections creating com-puterized job banks in all 50 states; the National Commission on Superconductivity; a federal database of trade statistics, the National Advisory Committee on

tiatives on Productivity, Technology and Innovation.
In addition to addressing foreign trade, the bill "is a step toward addressing our competi-tiveness problems here at home," with provisions to boost research on advanced manufac-turing technologies and improve education and training pro-grams, Sen. Jeff Bingaman (D-

The next generation of desktop computing will let us merge data from different sources into a useful flow of information.

# HP face-lift leaves blemishes

BY JAMES A. MARTIN

ORLANDO, Fla. — The more than 2,500 Hewlett-Packard Co. customers expected to converge here this week for the Interex users conference will find a company that has come a long way in the year since it shipped its longdelayed reduced instruction set computing (RISC) systems. Yet despite advances in technology, marketing and corporate stature, since the 1987 conference, HP

its quest to challenge IBM and to Digital Equipment Corp. in the minicomputer market.

Interex is expected to be a "state-of-the-state" show, with updates on HP's RISC-based of Precision Architecture (PA) systems, the countersuit against it

Apple Computer, Inc. over New Wave and performance benchmarks from beta-test sites for the enhanced PA operating system, MPE XL Version 1.1.

tem, MPE XL Version 1.1.
But the company will probably downplay some holes that users and analysts still see in its product line:
• A lack of relational database

A lack of relational database and transaction processing capabilities on the HP 3000 Series discountry.

900, which make up the PA, or Spectrum, models. "HP is still playing catch-up with their software, and most users today are conditioned to having transaction processing and relational databases," said John Dean, a technology analyst at Montgonery Securities in San Francisco.

A lack of new applications, both commercially and privately developed, for the Spectrum series. "Are HP's customers writing new applications for Precision Architecture, or are they just running the old applications on these higher performance, netwer systems? That's the critical question," sold Adam Cubing, a technology analyst at Kidney, a technology analyst at Kidney, a technology analyst at Kidney.

cul question," sold Adam Cubney, a technology analyst at Kaider, Panhody & Co.

der, Panhody & Co.

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Excel spreadsheet.

• A lack of support and interest in the HP 1000 real-time processors. Several users interested said they have been dismayed to see HP turn its attention away from the older HP 1000 systems in favor of Spectrum and the Unix-based HP 9000 workets—

Support weakneshing
"The level of support for the
1000 seems to be decreasing at an amazing rate," said Donald A. Wright, president of Interactive Computer Technology in Lake Elmo, Minn., and an interest board member. "We relia us! supporting the computer the computer of the computer the computer of t

arate completely."

The HP 1000, none the firm's flaghtly minicomputer, has been repositioned as a real-time 100 application system, "which is result in strength," minicomputer the marketing systems marketing marketing systems marketing marketing with the marketing marketing with the marketing marketing with the marketing with the marketing with the marketing with the marketing marke

Overall, however, HP observers and customers are upber about the Palo Alto, Calif-base company. The company's vigo cost embrace of standard in gained the firm much respect the industry. Its RISC techno cogr has been well received to customers and Wall Street alike.



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Behind the numbers are thousands of businesses. universities, government agencies, hospitals—all kinds of organizations—that trust Northern Telecom. They know that an investment in a Northern Telecom Meridian PBX is an investment in the future, because we design PBXs to be upgraded not traded. Every Meridian SL-1 ever made can be expanded (from 30 lines to thousands) and equipped with advanced ISDN leatures. And through Meridian Customer Defined Networking, each can be

part of a unified corporate information network. For all the facts and features you need to decide on Northern Telecorn, call 1-800-328-8800.

**LEADING DIGITAL PBX SUPPLIERS 1987** lions of Lines Shipped Worldwide)

NETWORKING LEADERSHIP FROM NORTHERN TELECOM

#### EDITORIAL

# Miles to go

HE MIRACLE OF Apple's comeback from near-washout to industry superstar has been told to death, but will the magic continue to work in the MIS market?

As this week's Special Report on the Macintosh attests, Apple may still face its greatest challenge in gaining acceptance for the Macin-tosh as the machine of preference for corporate microcomputing. The distinction between preference and standard is important. The Mac is already an accepted option at many large firms, but it is still far from fulfilling a role as the machine for corporate microcomputing A telling statistic for Apple is the Mac's per-

formance in a new survey of 174 MIS executives who are members of Computerworld's Editorial Review Board. Although 37% of the members have Macintoshes installed at their sites, only 29% said they plan to purchase Macintoshes during the next 12 months. More troubling for Apple, 54% said the emergence of graphic interface programs for the personal computer will probably cause them to purchase fewer Macin-

The Mac's success to date has been a function of the markets it created. The hugely successful desktop publishing craze has led many publica-tions, including this one, to standardize on the Mac for virtually all presentation graphics.

But as a tool for day-to-day business applications such as word processing, spreadsheets and electronic mail, the Mac's only real edge is its ease of learning. That's not a small advantage. but against a base of 17 million DOS-based machines, it's also not a compelling argument for MIS to make it a front-runner.

To realize its potential as a favorite in MIS, Apple must move forward on several fronts. It must rapidly rectify its communications shortcomings with IBM hosts, particularly in the ar-eas of Token-Ring support, Netview compatibil-ity and cooperative application processing.

Apple must also get the flow of innovative new products started again. It has delivered no new computers since the Mac II shipped early this year. In a business in which one company controls and dictates all innovation within the hardware standard, inactivity is weakness. Advancing the state of the art is the answer. Suing Microsoft isn't.

Finally, Apple needs to better establish itself as a business partner for MIS. The company has made great progress in this area in the last year, but the alliance is still rough around the edges. On the one hand, Apple officials say they have corporate religion. But they also endorse a strategy of working their way into those corporations department by department. MIS was blindsided by that approach five years ago with the PC. It isn't likely to repeat the same mistake.

This is a time of opportunity for Apple. MIS buyers are unimpressed so far with IBM's Micro Channel Architecture. They are open to alternatives. With just a little more attentiveness to their needs, Apple can be that machine of prefer-



#### LETTERS TO THE EDITOR

#### Just goods

Dynamic random-access men ry chips in short supply? Suppl ers afraid to ramp up production only to find a falling market? Inequitable distribution of avail able supplies among large and

small customers? Double and triple ordering to ensure adequate supplies dis-torting bill-to-book ratios? All these problems were solved years ago in agriculture and min

ing with commodity futures. Megabytes of com ry are as much an informa tion age commodity as steel, oil and copper are to basic manufac-

Electronic chips are no more line, refined metals and frozen juice concentrate t commodity electroni Shouldn't comm future contracts be available to minimize these periodic panics and provide an orderly market for suppliers and their cus

> Richard L. Kleir mputer Systems Berkeley, Calif.

#### Consultants OK

Risk vs. reward" [CW, June 20] was accurate and inform pointing out some of the inher-ent dangers that go along with maintaining independent con-tractor status in the computer

The author was correct is ing out that many "oppores for technical profession als to take on their own contra tion 1706. H thor indicated that "for

willing to face that risk, to keep books and sell clients on their services, it is still possible to er or consultant.

The fact of the matter is, to that cont et independent contractors take great pride in operating their businesses as any other company does. Independents pay more than the average em

worker in tax And we are responsible for eping accurate records and in for all our consulting-related In "Morals over \$\$\$" [CW, June vities throughout the entire year. This is not something new

for the consulting profession — it has always been the status In light of the controver surrounding Section 1706, ma of the larger technical serv firms have chosen to capitalize on the erroneous fact that we are

> This week in history

Aug. 7, 1978

opens its first retail store lo-cated in the Mall of New pshire, promising im off-the-shelf deliver

It's all systems go for the his toric breakup of the Bell sys-tem as AT&T accepts the nges in its reorganization demanded by U.S. Fee District Judge Harol

cheats" who are protected by the notion that we have a legiti-

It is the conveyance of inforation in this manner that adds y and must not

George R. Zita President

Who's bad?

20], you editorialised about sanc-tions against South Africa. You de the doubtful statement at boycotts work and in gener-assumed that boycotting outh Africa is a moral action ut that in itself is doubtful.

What exactly are we aga South Africa? outh Africar
Are we against repressive
overament? In that case, we
ave many far worse cases than
Africa to think about, in-

For as long as Angols and Mo-mbique suffer Marxist dicta-rahip, we should boycott those untries rather than South Afri-

The movement to b

# Computers still silent partners in high-tech

Don't expect to chat with machines for a while

such as inventory control. We have watched HAL understand

our most subtle emotions and re-ply to them. We can't help, even

There are still significant bar-

nces and paragraphs rather than individual words.

Unlimited vocabulary. Un-derstanding all of English (or French or German) rather than

only a few hundred or few thou-

Natural language process-ing. Being able to speak in ordi-nary English and have the sys-

SERS ARE not

satisfied with the devices

created so far, except

applications such as inventory control.

tem completely understand it. This ability is not just voice rec-

ognition but the ability to under-stand the meanings of words and their relationships through

In a language like English, which permits many unique conwhich permits many unique con-structions and exceptions, this sibility is particularly difficult in-Never mind all the "matural lan-guage" interfaces you keep sec-ing: They are simply products that understand a few Enginh-words. "English-Bie" would be a better, but less exciting, descrip-tion of their capabilities. Speaker independence. Be-ing able to understand sev-ior able to understand sev-

in very specific



AMY WOHL are a funny thing. When we

if subconsciously, expecting a computer to act just like that. new and excitriers to be breached:
Continuous speech. Being able to understand speech as it is ordinarily uttered, in phrases, ing, our reaction is not to the ess or the excitement of

the thing itself but to how this eady know. Many of the newest technologies relate to what computers

see and hear and how they understand and respond. Our expectations here are very high. for they have been set not logically — by earlier and cruder versions of similar technologies but rather by years of books and magazines, television and

Sometimes the popular media speculates on a far-off future, but often it pictures that distant hoon as nearly or entirely within

member HAL, the hum sounding computer in 2001: A Space Odyssey? It not only underd everything it heard and rephod in an engagingly human way, but it could also spy on you cted your intentions.

And all the human-looking human-seeming robot charac-ters that appear on TV and in the ovies — they hear, they speak ey even seem to have emo-

No wonder the latest voice cognition device or image mater seems so mandane. Our

expectations

Devices today can record voice is compressed and digital form. This capability permits it to be stored and forwarded, as in voice il, or attached to text or data

files, as in voice annotation.

A limited-vocabulary speaker-specific device can be built,
and it would be adequate for
commanding a device or prople. The technology does not yet permit large-vocabulary contin-uous-speech applications such as the infamous talking (listening, really) typewriter that accepts dictation and accurately displays it on the screen of a computer. Users are not satisfied with

devices created so far, ex-

# Life in the changing LANscape

The goal: networking as simple as making a phone call 'round the world

HARVEY NEWQUIST III

What's the hot these days, be-sides the political conventions?

Local-area networks are not rw, and they are by no means a technology you should have to

LANs have followed the tractional path of being embraced by engineering and manufacturing environments and only later being recognized as valuable by data processing departments. This syndrome, long prevalent in

MIS, is known in psychology as All the pieces of a puzzie are sit-ting in front of an individual who can't quite fit them together. One day it hits the person with all the subtlety of a fiving mallet — Other cases that hit the MIS

department in a similar fashion are personal computers, rela-tional databases and expert sys-tems. LANs are now a part of the "Ahal" experience.
As long ago as 1978, the In-ternational Standards Organiza-tion (ISO) started looking into

Hewlett-Packard had devised its DS Net for cell controls in the factory — in 1973. That was 15

years ago.

Shortly after the ISO began its effort, Data General had its Xodiac Network Bus for engineering workstations, Allen-Bradley its Data Highway, Texas brancey its Duta Hagaway, 1 exist Instruments its Trway and Gould its Modbus — all for factory ap-plications. These protocols were implemented before MAP was even a twinkle in networkers'

some base other-setworking schemes started up at the same time, although they generally were a little slower off the mark. This group included Xerox's fa-bled Ethernet, the former Bur-roughs' BNA, Honeywell's DSA

tember 1990, Xerox, Intel at DEC banded together to public joint specifications for Ethernet

carren when certain companies and organizations realized the benefit of adhering to a single protocol. The continued efforts in OSI were displayed at the 1984 National Computer Conference (which now rests in

ference (which now rests in peace) by weators intending to support that model for both factory and office use.

But other wendors with big-speared. A prime crample in Sun Microgramem with its Newtonian Williams on NPS, which was introduced to the workstation community in 1985. Sonn, a boat of modern becomes of modern becomes on the Newtonian Community in 1985. Sonn, a boat of modern becomes on the Newtonian Community in 1985. Sonn, a boat of modern becomes on the Newtonian Community in 1985.

# Could high-tech have beaten stress?

J. A. SAVAGE

I put the followthe apparently stressed-out crew aboard the U.S.S. Vis-

conner be able to distinguish a passenger plane from a fighter plane if outfitted with state-of-

 Real-time 'response. HAL replies immediately. Computers could understand more difficult questions if they had more time to consider (that is, process) them. But we demand real-time have been mistaken for enemy aircraft if the U.S. Navy had a

ty to assist decision-making in the heat of battle, some say. Keep in mind that the critical in-

process, not the missile-firing and target capability. "It was a fairly simple prob-lem to resolve," says Gordon Bell, chief engineer at Ardent Computer and creator of the first minicomputer. Feeding buttle-ground data into a graphics com-puter geared for processing may have helped overcome human errors identified in the recently publicated mixtary investigation.

at the discourar company dis have enough power to process the information in time to distin-guish a civilian from a military craft but received rader and so-nar signals that fed incomplete information, that's another tech-nological story. Current ustellite

Introducing the most cost-effective way to deal with the future:

Why can't you have it both ways

The UNIX "operating system gives you unparalleled software and hardware options Yet at the same time, you probably

have a lot invested in MS-DOS and your PC systems.

Which adds up to a problem: Adopting the UNIX O/S can mean throwing out your PCs and applications. Or cutting PC users out of the new UNIX system. Which misses the whole point.

But now you don't have to face that business decision.

#### PRESENTING THE UNISYS U 6000/50.

It's a midrange computer for up to 32 users, based on the Intel® 80386, Running both UNIX and MS-DOS applications simultaneously, you can set one up to satisfy yourself and your users at the same time.

Your users will continue working with applications they've come to know so well. Meanwhile, you'll get everything the UNIX environment has to offer. Plus, Unisys enhancements like powerful 4GLs and a

user-friendly UNIX Q'S shell give you even more. So creating and adapting UNIX applications becomes easier than ever.

PRESENTING THE UNISYS UNIX O/S BASED LINE. The U 6000/50 is just one member of the

Unisys family of 14 UNIX Q/S based computers. Handling from 1 to 384 users, it's one of the broadest UNIX Q/S based lines in the business.

You'll get a system that fits you perfectly, supported by top-flight Unisys service representatives specially trained to work on third-party equipment, as well as our own.

At Unisys, we believe better information leads to better decisions. And deciding on a computer that can give users more and better information than they ever had before might just do something for your future.

Find out more about wifat Unisys and UNIX 0/S can do for your department. Call 1-800 547-8362, ext. 103. BETTER INFORMATION. BETTER DECISIONS.





#### LANscape

CONTINUED FROM PAGE 19 freight train. Getting vendors to sign on was fairly easily accomplished, and no doubt Sun wishes they were just as eager

to be part of its current endeavors in

nts and holdouts ner obvious example of a communal orking breakthrough is the Manufac-

known and appreciated by everybody (ex-cept DEC) as MAP.

Lots of other networks have come and cone, and some have even managed to sold on: IBM's Token-Ring and PC/Net, Are you a

Micom's Instanet, Zilog's Z-Net, 3Com's Cheapernet, GE's Genet and Network Systems' Hyperchannel are only a few of the myriad networks introduced during the post decade. Yet for all the interest in LANs during

the time of their emergence, once installed they became taken for granted as ust part of the system, much as the tele phone is. While the peripherals to the network received all the attention, the actual link — the network itself — was largely

ignored. As such, there are few compreh network software designers and imple-mentors who are able to move LANs into the field of office automation with a sense of ease and savoir faire. In fact, a lack of expertise pervades the entire business of

HERE ARE few comprehensive network software designers and implementors who can move LANs into office automation with a sense of ease and savoir faire. A lack of expertise pervades the business of networking

networking So for all the recent talk about LANs, it really comes down to the computer indus-try committing resources - namely, manpower, time and money — to develop workable networks. MAP is a good step,

CIS Solutions Provide

but unfortunately, not everyone thinks The recent commitment on the part of vendors to adhere to a proposed OSI in-

formation exchange format could also help. Ultimately, it comes down to how important the need becomes in the customer base in the next few years and how forcefully users press that need on ven-

Maybe someday all computers will be able to network together, just like in the phone system. Because as much as the average user complains about service, there's a great deal to be said about the fact that you can pick up a phone any-where in the U.S. and communicate with any other phone in the world.

# Silent partners CONTINUED FROM PAGE 19

as well, particularly those that deal with recognition. A few weeks ago, I was de-scribing a product that can read a particu-lar individual's handwriting based on PC (Intel 8088) technology. "It doesn't read cursive handwriting, the local cynic

He meant that this product, from Linus Technologies, Inc. in Reston, Va., re-quired that you lift the pen at the end of

quired that you lift the pen at the end of each handwrites letter to the system would not need to understand how to tell when letter she pain and end.

Of course, it would be better if a system could understand everyone's heart could understand everyone's heart without training and without any hangain in the writter's normal behavior. But in't having partial solutions now at a reasonable cost preferable to waiting for "full" solutions at any cost?

"full" solutions at any cost?

"Some insuraine rowleens are a benefit

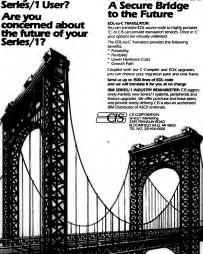
"full" colutions at any cost? Some imaging problems are already solved. We can read characters of any aix trace, on very hexpensive (less than trace, on very hexpensive (less than trace, on very hexpensive (less than was an elementary to the trace, on very hexpensive (less than was and expensive text from graphics. Some we may be able to both associate recognised text with accompanying im-ages and find those images by automatically generated indems. Should we not to bey such products because they don't show recognise the content of images?

Medizing do

What we need to learn is how useful each
of the above tools can be at each stage of
its development. A compater will not listen to your ordinary speech and immediately render a clever reply. And no, the
computer will not then translate this reply
into perfectly parsed French or Chinese.
But we are moving along the path.

into perfectly parsed French or Chinese But we are moving along the path. One piece of technology can capture human speech and another paper induments speech and another paper indu-nances and recognition. It is the addition of these technological wanders to one another, rather flavor wanders to one another, rather flavor that in the end add up to something wa-derful, useful and valuable. Pleasurer one see and try these thisses

Pioneers can see and try these thing as they happen, with their small expects tions often leading to pleasant



# SYSTEMS & SOFTWARE

HARD TALK Stanley Gibson

# Tardy Posix ensnared in political tug-of-war?

#### IBM plays it to the limit



been a year of price in-You just knew it was going

to happen, didn't you — that af-ter setting an upper limit of its Corporate Service Amend-ment (CSA), IBM would raise prices by 3%? You have to give IBM credit for not raising prices

Under CSA, a customer can withdraw with no notice or pen alty if maintenance prices for a given location rise more than 3.5%. To withdraw otherwise.

notice (six months under the A user who pulls out can go with regular maintenance, which would make his bill, say, 15% higher than under CSA. Or be

# can go to a third party.

So, will users wake up in a pan-ic, give IBM notice and then shop around? No. After all, they signed the CSA agreeing that if IBM raised prices to 3.5%, it would be all right. And they had put out of their minds shopping among maintenance vendors for a few years. How many people to the trouble of moving out of ir apartment when the land ed, the third parties,

#### ANALYSIS

BY ROSEMARY HAMILTON

The National Bureau of Standards' (NBS) interim Posix specification — which was to be required in government con-tracts until an IEEE standard could be settled on — is still awaiting approval, although it was expected to receive the offi-

was expected to receive the oth-cial nod several months ago. The interim specification, proposed by the NBS last year as a federal information processing standard for the Unix operating system, awaits signatures from the necessary government agent cies such as the U.S. Depart ment of Commerce, according to NBS officials.

#### More C series his code manually for the parallel processing, a Convex spokesprocessors sor system that can be expanded

from Convex BY STANLEY GIBSON

and vector computer. The C201 and C202 can be expanded to 2G bytes of physical memory. The C201 is causale of 23 RICHARDSON, Texas - Conmillion instructions per second (MIPS) on the Whetstone benchvex Computer Corp. recently added two C series processors, mark; the C202 can perform 46 Whetstone MIPS. announcing the C201 and C202, which replace the Model C130. Both systems incorporate the "This time you can start with the C201 and plug in a board to get the C202," said Omri Serlin, on Convex's C series earlier this year and are compatible with C series Models C210, C220, C230 and C240. nc. in Los Altos, Calif.

As an entry-le vex retains the C120 m A C120 user moving to a parallel system would have to recompile

federal agencies follow the stan-dard and use their collective purchasing power to require ven-dors to submit bids that meet its

d the scenes Behind the scenea James Isac, Posix strategy di-rector at Digital Equipment Corp., suggested last week that a political tug-of-war may be go-ing on behind the scenes. Con-

tracts that have been advertised for the U.S. Air Force, Depart-ment of the Treasury, Federal ers amount to more than \$5 hilon, industry sources noted. In the group of vendors pur-

suing these contracts, some, like DEC, comply with the NBS in-terim standard and some are

to the C202 by inserting an addi-

onal processor in the cabinet.

Government Unix growing

thdown of new installations by sector shown the g ng a larger share of the total number of systems



OPrimary resources and manufacturing

and com

Government O Education

DIFFORMATION PROVIDED BY NOTION RESEARCH CROSS

waiting for the complete or so-called full-use Posix specification from the IEEE. ments in the works," Issue said.
"By holding back or pushing (the interim standard) forward, dif-Continued on page 29 There are major procure

# Minis chart race course

DG systems keep boats on-line in Mackinac dash

BY JEAN S. BOZMAN

CHICAGO - For 100 years, th intrepid sailors who chall Lake Michigan in the Macl Island race treasured the silence of the 333-mile journey from Chicago to the tip of Michigan's Upper Peninsula. The reason was simple: Silent running al-

lowed the contestants to nip past competing sailboats.

This year, officials at the Chi-cago Yacht Club as well as anx-

ious relatives waiting at Mack-inac Island will have an idea of Inc. in Los Altos, Calif.

The C201 starts at \$495,000; the C202 is priced at \$755,000. The C201 has already been shipped to several customers, and the C202 is what is going on offs through a computer system through a computer syst stalled by the race's cost Data General Corp. "Tra

don't see them again until they reach the end of the race," said

Alan Cox, regional man DG's Chicago office. But this year, those who raited the race's end July 25 ew where the boots were tted within grids that were Continued on Page 25

# Spotlight



BIM

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It's 2 o'clock in the afternoon! Do you know what your CICS system is doing?

You can't get along without it. Honest

The 100 + page manual is available on request, and contains of CICS. Call for it, or a tree 30-day trial.

Price: OS — \$5000 or \$250/mo., DOS — \$2500 or \$140/mo. Nos 15 system software products for improving productivity and use of GOSVEE, OR, and GDE, and stem prainting conculting. Managing agents in most countries.



# **CINCOM Boosts Production** At Holly Farms.

PROBLEM: Improving programmer productivity in order to reduce a large applications backlog

CINCOM SOLVED IT: WILL MANTIS Application Development System

During a period of explosive growth, Holly Farms found itself with two problems: a large applica-tions backlog and a short supply of programmers able to step in and produce mmediate results. The solution was MANTIS® the

er Bill Clontz

"MANTIS was ideal for us because you don't need 2-3 season for the mean of the second s programmers'

As a result, programmer productivity at Holly Farms has reached an all-time high. "We've seen substantial improvement ratios," Clontz said. "In the time a programmer might turn out one CICS com-mand-level program, he can turn out from six to eight programs on MANTIS."

programs on MANTIS."

Most of the 500-plus MANTIS applications now in production at Holly Farms are aimed at stream lining costs. For example, Data Processing used MANTIS to develop a model of how chiclens consume feed over the course of their lives, allowing Holly Farms to cut production at one of its feed mills by 154 days a week.

"We've got key users who are picking up on the term "MANTIS" (Cloutz noted, "Around here, MANTIS has become a syroom for feet it does quickly" from our how MANTIS can boost your produc-tin; Call us today for more product and customer success information. Or, write Marketing Services Department, Clincom World Headquarters, 2300 Montana Norme, Cancinami, OH 450.

1-800-543-3010

In Ohio, 513-661-6000 In Canada, 1-800-387-5914

SOFT NOTES

# Index Technology links with DEC dictionary

Two market leaders pooled strengths last week when Index ology Corp. announced a link between its Excelerator front-end design and analysis tool and Digital Equipment Corp.'s VAX Common Data Dictionary/Plus (CDD/Plus). pucation suite for the LDM Digs environment. Sold under the name Strategic Management Systems, the applications in-clude management, budgeting and accounting, general ledger, accounts payable management, purchase order management and CDD/Plus, which debuted last month along with DEC's on-line transaction processing entry, adds distributed capability and open architecture foundation to DEC's CDD, with which it is compatible, said DEC marketing

anager Larry Vifquain. The link, which is sisted to be profiles the currently available software tools for the IBM rela-tional database management enavailable next month, runs on all Vaxstations under VMS and lets users merge and integrate data

Excelerator and DEC's se/IS product line. It will reportedly include a user interface with windows, which allows users to simulta-neously view and manipulate America, Inc. (MSA) to provide financial and human re-source software. The state also licensed Information Expert, a fourth-geogration language tool that will be used to help awap data between MSA and non-MSA systems. data resident in Excelerator/IS and in CDD/Phis as well as trans-fer design data from DEC's sys-tem to Index's.

Must Software Internation Harris Corp.'s Computer Sys-tems Division and Informix Software, Inc. have an-nounced that they will jointly market the Informix line of rela-tional database management al recently reported that it has red the rights to Decision surces Corp.'s Rapid Inormation Processing System, a ersonal computer-based execu-ve support system. Must said

Prime Computer, Inc. in Na-tick, Mass., and Progress Soft-ware Corp., which is based in Bedford, Mass., recently an-nounced that the Progress BM may be grabbing the head-ness as the newest X/Open member, but other companies ontinue to swell the X/Open ranks. Language Processors, inc., a maker of software devel-opment tools located in Fra-

Walker Interactive Systems in San Francisco has made avail-able its mainframe financial ap-plication suite for the IBM DB2

Knauer Publishing in New York has released The Directo-ry of DB2 Tools, a listing that

The state of Indiana recently picked Management Science America, Inc. (MSA) to pro-

fourth-generation language and DBMS in available on Prime's EXL family of Unix-based super-microcomputers. The two firms have also signed a worldwide

# System inspects agents' work

#### ONSITE

BY NELL MARGOLIS BOSTON - An insurance con

BOSTON — An insurance com-pany is only as good as its agents. But until 18 months ago, The New England — formerly New England Mutual Life Insurance Co. — did not have an efficient way of finding out how good its agents really were. Today, a user-driven experi-

way of anomg out now good as agents really we-driven experiment in executive information systems is giving the Boston-bosed, \$2.8 billion a year in promisma company an eagle s-ger of the performance of its around the country. Destroy around the country. Destroy the second the country bearing the second the country. The data needed for the lean, meaningful performance of second is a lank shaply wan not provided as the provided of The New England's innurance and Personal Fenance Division.

"We had a lot of data stored, but stored as the product of transactions," Shafto said. "Also, a lot was stored in P.C. and wasn't integrated — not to meetion what we had on paper." With agents selling a broad spectrum of both immunero-based products, "which produce had been something with a product of the product of the

me stated goal, plan or pricing sumption," he said. Eighteen months ago, Shafto.

dustry — he spent seven-plus years at Electronic Data Sys-tems Corp. with H. Ross Perot tens Corp. with H. Ross Perot — declared an end to the paper chase. He deputized his execu-tive assistant, second vice-presi-dent Vince Ficcagiia, to build a system that would allow him to see and manipulate a wealth of

Puper chease over Today, the data that used to be nextered throughout The New England in paper reports and dis-parate databases in combined into a boot database that gets downloaded once a month into a hard disk on an IBM Personal System/2 Model 80 on Shafton deak. Using Comeshere, Inc.'s deak. Using Comeshere, Inc.'s

Systemyz Model 80 on Sharto's deak. Using Consshure, Inc.'s System W software, Ficcaglis and crew developed a set of 13 screens that allow the executive to see, in chart and graph form, what and how each agent is do-ing, both in the abstract and

the key concepts that distinguish the system, Shafto said. "It's not that we have information that we didn't have before. It's that the

software organises and commu-nicates it in a way that is so much

termine at a glance not only a given agent's sales record or an



Shorbs
whose bottom lies in expanding
is selling to more clients or solid
in selling to more clients or solid
in selling to more clients or solid
in the control of the con

# Performance elixir revives Pyramid minicomputer line

MOUNTAIN VIEW, Calif.

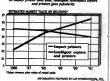
ries 9000 systems.

The systems offer increased performance—as much as 75% for database applications and 300% in terminal-intensive environments—according to the vendor. Pyramid also lowered

The four new reduced in-struction set computing sys-tems, with one to four proces-sors, are called the 9000-TA

#### **Data View**

Gaining intelligence



# HARD RETS

# CDC and Emulex invade DEC's digs

Continuing its forsy into the Dig-ital Equipment Corp. mainte-nance areas, Control Data Corp. announced a program un-der which Emulex Corp. will offer CDC's no-site warranty service on a Performance 4000

service on a Performance 4000 Ethernet terminal server. Emulex's Performance 4000 is the first third-party Ethernet terminal server to be fully com-patible with DEC's Local-Ares patible with DEC's Local-Ares Transport protocol, according to Emulex. Under the program, us-ers of the terminal server re-ceive one year of warranty ser-vice provided by Minosapolis-based CDC's Technical Services

Cipher Data Products, Inc., headquartered in San Diego, amounced that Harris Corp.; a Computer Systems division based in Pt. Lauderdale, Fla., aigued a \$2.4 million, two-year contract for Cipher's ST150S. W-in. cartridge tape drives and Microstreamer and Cachetage Main real-tained lens drives.

ST150S drives, which provide 150M bytes of storage, into the 150M bytes of storage, mu use HCX superminicomputer, a Unix-based system used for transaction processing, detabase management and other depart-mental applications. The Microcounts the bulk of its customers as being in the commercial mar-ketplace, appears to he bending over backward to please those uners. This includes offering Co-bol 85, SQL database interfaces and Unisoft Corp. is emulation of IBM's CICS.

Bull, Inc. in Minneapolis. contract is for a DPS/800 system that will perf

system that was perform acms instrative processing.

The Oregon state educatic system consists of eight institu-tions: three four-year universe ties, a health-science university three state colleges and a pol-technic institute.

# Jigit

Kaman Corporation Is a Fortune 500 company and one of the nation's largest industrial distributors. Kaman Bearing & Supply, its subsidiary, is connecting its 165 brainchest throughout the U.S. and Canada with a computer network from Digital. According to Harvey S. Levenson, President, "Digital is providing a network for transaction processing. Its will give each of our brainches instant real-time access to the company's entire nationwide inventory – in effect, one 'big back room' for distribution."

"Transaction processing that her Kaman manage an inventory of over industrial parts no paperwork."

major role in Kaman's choice. Levenson stated, das few people as possible to run the system. 
processing system to track the state of our 
days of all the alternatives we've examined. 
the possible we'll run our business and serve our

your compensive advantage now, write: Digital Equipment Corporation 200 Baker Ave., West Concord, MA 01742, Or call your local Digital sales office.



#### Minis

#### CONTINUED FROM PAGE 23

10-miles square. Do MY/2000 minicomposters estimated the sallboard's positions by using data points on the high 23 start at Chicago's ladercoit, at a mid-race check-point and at Mackinac. Custom software took several factors into account, including average boat speed and weather commented to the contract of the contr

Island.
"We're plotting estimates of the points in between," DG spokesman Andrew Hettinger said. "That's not definitive, but until we added computers, the results were posted on a piece of paper." Even estimates can be thrown off by unusual

weather conditions, as they were by a tail wind last year that knocked five hours off the record time for the race. A Mackinac race usually takes 30 to 48 hours to com-

piete, but last year's was won in 25 loours.
Last year — 10% first as a Maclinne sponsor — end users had to scroll brough a list of all 300 rnce entrants to find an individual boat's position in the race. This year, 106 improved on that by customizing a Microvini, Inc. Rhuse 5000 that can be accessed from multiple DG Dasher 286 personal computers. The micromputers hosting the database communicate over AT&T rock-grade lines using the CCITT X.25 packet-witched

At least one sailboat in the race, the Swedish Carut, also made use of an onboard DG One portable computer. The computer was used on deck as a navigational support system while data was fed into a below-deck unit from four wind-direction sensors.

#### Performance CONTINUED FROM PAGE 25

(MIPS) to 25 MIPS, a rating that has not increased from the earlier models. Instead, the increase in efficiency comes in software and cache improvements, according to Pyramid.

software and cache improvements, according to Pyramid.

For database applications, increased performance of 35% to 75% is the result of an interfeaved virtual cache subsystem, according to Jim Hughes, manager of

product marketing.
Improvements from 60% to 100% in communications networks also come from the new cache because the Transmission Control Protocol/Internet Protocol system can pass packets of information faster, Hugges said.

The entry-level system, the Model 981s, Satras 45 128,000.

The entry-level system, the Model 9815, starts at \$128,000.
At the high end, the Model 9845 starts at \$425,000. Pyramid lowered the price of last year's 7-MIPS Model 9810 to \$110,000, a 28% decrease.

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#### Gibson

CONTINUED FROM PAGE 23

many of whom followed IBM with price cuts last year, may follow suit now with price increases on the order of 3%. If this happens, there will be even less rea-

Same old thing? Many would say all this is typical of IBM: to buy market share through low prices and then, when users are locked in, raise

While users might view the increase as an irritant that does not greatly change their plans, IBM's maintenance policies are making what may be permanent

Tardy Posix

CONTINUED FROM PAGE 23

James Hall, a computer specialist with the NBS, said there is no behind-thescenes fighting over the interim standard. When asked why approval has been ded several months, be said "there's no od reason I can give you. I guess [the

good reason I can give you. I guess (the government agencies) want to be sure that everyone gets a look at it." Asked when be expected the interim standard to become official, Hall replied, "It's the same old answer: Any day." The interim standard was proposed by the MISS.

the NBS as a way of working around the slow approval schedule that has befallen the IEEE Posix standardization process. In 1984, the IEEE took over the Unix users group effort to establish a set of comnon, low level interfaces to Unix ser-

While neither the NBS nor the IEEE standard is minal form, computer compu-nies are taking different approaches to the proposed NBS interim standard. Un-like DEC, both IBM and Apollo Comput-er. Inc. have said they will wait until both the NBS and IEEE standards are pub-

neo. Until the interim standard becomes a Until the interim standard becomes a federal information processing standard, the NBS says vendors should specify Unix functionality rather than referencing a Poex specification when responding to a government request for proposal.

Critical Issue

e interim standard was an unusual we on the part of the NBS because it asmed a lead role rather than waiting for indard-actting bodies to publish crite-. However, the need for a Unix standard became critical over the past two rs, as many government agencies put contracts amounting to several billion

our contracts amounting to several billion dollars for Unix-based systems.

Eventually the NBS-Posix standard will be based on the full-use IEEE Posix due out this fall. It will depart from that standard in areas that the IEEE has identified as options and the NBS has identified as previous.

In the meantime, some amount of con-sion is swirling around the two agen-

fusion is whenge
cise efforts.

At Apollo, the interim standard is considered "a moving target" by Berbara
Shelbness, director of domain notware
product marketing. "We're very close to
compliance with the interim standard."
Shelbness said. "But right now we will wait
until the IEEE is finalized."

es in the maintenance landscape.

Time-and-materials maintenance is getting further and further out of the question. While maintenance went up by 6, time-and-materials charges were ed by 5%

Earlier this year, IBM restricted time-and-materials service to weekds business hours except in life-threater

This squeezes third parties, because they will be unable to call on IBM to pro-vide service in a pinch — a practice some had employed.

In addition, the 5% price bike ap o spare parts, so third parties buying hese from IBM will have to pay more

On the bright side, however, IBM is making parts available to volume purchas

ers on a 24-hour basis, as the result of a cent policy change. Third parties have put up a bra

front, saying they have seen little adver impact from CSA and the other policies ut most third parties admit that CSA at set from the maintenance decisionntenance decision-

least frome the maintenance decision-making process for a number of custom ers. Industry analysts say although the third parties may still be in business, the margins are being squeezed. They have cut staff and otherwise reorganized to ke ends meet. Without question, CSA

Users gain All this raises the question of whether there will be competition in the maint nance market in the future and, in the

long run, whether the user stands to gain The answer to that question would seen to be self-evident: The presence of com-

petition helps the user: its at This column has suggested b that users owe it to themselves

around in as many areas of computing as is feasible. Because without competitive bidding, there can be no leverage

prices may not yet be far out of line. But in the future, getting true value for a main-tenance dollar will become an ever more clusive goal.

on a Computerworld's senior editor, as



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#### PRODUCTS - SYSTEMS

#### Processors

Nemonix, Inc. has announced its next generation of system expansion products for Digital Equipment Corp.'s VAX. The upgrade was designed for VAX-11/780 users and is said to increase over-

11/780 users and is said to increase over-all systems throughput by 45%. The Nemonix NX780-SPU is hard-ware and software compatible and in-cludes proprietary micro diagnostics. memory diagnostics and benchmark soft-ware. The product also includes the CPU

The NX780-SPU costs \$29,900. Nemonix, 106 South St., Hopkints Mass, 01748, 508-435-9087.

Data storage

A memory trade-up policy announced by Dataram Corp. allows users of Data General Corp. MV series computers to in-crease performance by adding memory without using additional expansion slots. Under the new plan, users may trade in their existing memory boards for higher capacity boards from Dataram. The trade-up policy is said to apply to origina DG and Dataram boards and covers mem-

ories for most DG processors, includi the MV/15000 and MV/20000 models. Daturam manufactures DG-compo ble memory boards in capacities rangi

from 2M to 32M bytes. The trade-up allowance plan is effec-

Dataram, P.O. Box 7528, Prin N.I. 08543, 800-822-0071.

#### I/O devices

Magna Computer Corp. and the Com-puter Products Division of Compute Consoles, Inc. (CCI) recently as

nounced a cooperative marketing effort that will make Magna's Falcon En-hanced Terminal available through

The Falcon terminal is a high-resolu-tion, alphanumeric graphics workstation that features Wang Laboratories, Inc. 2200 and Digital Equipment Con-VT100 and VT220 emulation capabili-

asis of the relat to be count of the resistance in a cross-over in the distribution networks of Mag-na and CCI, a Magna spokesman said. Magna is a peripherals manufacturer in the Wang market with a strong Wang 2200 reseller network. CCI targets the same market with its Power series of

same market with its Power series of minicomputers and superminicomputers and the Basic K compiler. The Falcon terminal costs \$995. Magna Computer, 24 Keewaydin Drive, Salem, N.H. 03079, 603-898-

#### NEW PRODUCTS -SOFTWARE

#### System software

Hewlett-Packard Co. has announced HP Laserrom for the HP 9000 Series 800 HP-UX computers, a service that delivers Unix operating system documentation and support information on compact

disk/read-only memory.
According to the vendor, HP-UX ad-heres to AT&T's Umix System V Inter-

face Definition Issue 2.

The initial version is said to contain the hard-copy equivalent of more than 10,000 pages in electronic form and will allow users to electronically search and retrieve information related to a Unix op-erating system. Topics include software design, support information and develop-

HP Laserrom for the HP 9000 Series 800 HP-UX computer is priced at \$1,800 for a 12-month subscription, according to

HP, 3000 Hanover St., Palo Alto, Calif. 94304, 415-857-1501.

Information Processing, Inc. has an-nounced a low-end pricing structure for its Blis/Cobol multiuser operating sys-

The system was designed as a virtualmemory, multiuser on-line operating sys-tem and compiler for Data General Corp. machines and other DG Nova-compatible The price reductions will have th

most impact on systems with one to 10 users, according to the firm. For example, a single-user 128K-byte system has re-portedly been reduced from \$1,280 to \$440. A 10-user 128K-byte system has been reduced from \$4,980 to \$4,400. Information Processing, Suite 1825, 427 Whooping Crane Loop, Altamonte Springs, Fla. 32701, 407-331-5200.

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#### EASAMETRIC

# MICROCOMPUTING

MICRO BITS

Douglas Barney

#### Green believes

of, Adam on. This Dhase teacher and time columnist has artic-ly placed Ashton-Tate's one language on a pedestal d, through much consulting, lped determine the ultimate sign of some key products.

design of some key products.

But being perhaps the ultimate Dbase inngunge aficionado,
Green at first resisted the move
to this thing called SQL. And
none of the people Green
trained at Dbase seminars

amed at Dosse senumars cemed to care about SQL, ei-er. But something apparently ided when Green was toying ound with, of all things, a pre-iease version of Dbase IV. He and SQL.

found SQL.
Unlike the vendors, Green
does not spout off about connectivity, client/server architecture and the relational model. He
simply likes the language, and
the SELECT command in particular, for what it can do with Dhase files. For some queries, SELECT can replace "a dozen nested DO WHILE NOT.EOFO loops in Dbase," Green wrote in a recent column. SELECT

# Northern challenge

Finns target DBMS server at U.S. market

BY DOUGLAS BARNEY

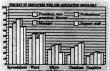
HELSINKI, Finland — From the land of long winter nights and moss-esting reindeer comes a database management system server aimed at the heart of

ware strategy.

And the company marketing the product appears as brash as Matti Nykaenen, who came away with all the gold medials in this jamping at the 1968 Winter Olympics. In fact, Princeton, NJ-based Va Information Systems Corp., which selfs Vsi/DRE, has issued a challenge to all comers: Outperform us if

you can. Despite the tough talk, Vin is Despite the tough talk, Vin is still largely unknown in the U.S. But it does have many of the in-gredients for success. The sup-port for SQL is there, it runs on many popular local-area net-works. And its supplier boasts of targets manufactures.

# Data View



# **Big Eight counting** on Microsoft's Excel

BY STEPHEN JONES

sass of Lotus 1-2-3, it has won over users at four of the nation's Big Eight accounting firms. Lotus had been entrenched as the de facto leader among Big Eight firms, but that started to change earlier this year when Microsoft made its first rush at

Microsoft made its first rush at accountants with aggressive marketing and cut-rate prices. A group within Arthur Andersen & Co. has scuttled thousands of copies of 1-25 in fewor of Excel for reasons such as ease of user training, higher performance, windowing capabilities and graphics. Much of the rest of the firm, however, is waiting for Lutur's sext more, sources and.

output and potential listas to Mi-crosost and BMf a OS/2. Excel can be a hard sell for some. The biggest deterrent is cost: Excel runs best with at least 1.5M bytes of memory and a fast but pricey 80286 microprocessor.

SQL DBMSs under the magnifying glass. Page 33.
 Minister solves Gerbil noystery. Page 33.
 Firm hammers out CASE developer's tool lat. Page 36.

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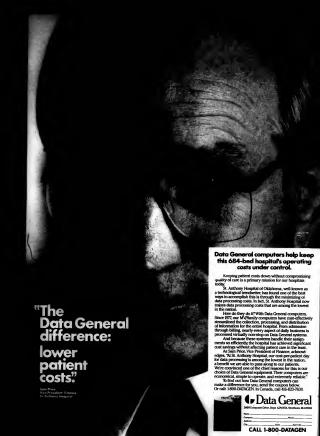
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Mort Rosenthal

#### Beneath OS/2 surface



semand — or, more precisely, the lack of demand — for OS/2. Apparently, customers are ring that they are not going to IBM and Microsoft's OS/2 for the next three years. Then again, given the way most ver dors and analysts present OS/2,

this is not a surprising reaction.
If you asked companies to
lay out \$325 for a new operating em and several thousands of dollars for additional memory, new displays and faster proces-sors, their answer would be "No thank you." And that is where the story of the lack of demand for OS/2 begins.

But the operating system, memory and processors are not what users should be buying or considering buying. They should be buying OS/2's potential to

application-specific needs. Here's an example. Recent ly, the manager of information centers at a major insurance company emphatically told me his company would not be interested in OS/2 for a very long time. Later in our conversa-tion, I saked him if be would be would easily connect all of his in-formation centers and allow them to share the latest product

# Vital stats for DBMS shoppers

Truly relational product must implement SQL genuinely, completely

First in a two-part series BY FABIAN PASCAL

With the proliferation of prodtheir virtues, it should surpri no one that one of the most fre-quently asked questions is "Which PC DBMS should fuse?"

But even though a simple an-swer is desirable, personal computer users must get used to the idea that database management system selection cannot be sim-plistic. In fact, the conversion to relational products today clearly demonstrates the consequen of oversimplifying product eval-

Fortunately, a good grasp of relational principles and SQL and

Fax board

delivers

message

BY JAMES A. MARTIN

Smoke signals, carrier pigeons, airmail, overnight courier, ESP — there is more than one way to

send an urgent message. The best method of all, however, may very well be a facsimile board

Facinitie machines have marched into offices around the globe and in a few short years have become as common to busi-

have become as common to busi-nesses as a photocopying mu-chine. But these machines are

costly - usually more than \$1,000 - and time-consuming.

their systematic application to product evaluation can help dis-

crpme the process.

The two major contributions of SQL are relational fidelity and standard compatibility. Fidelity combines reliable power with simplicity and thus provides the production that out on ivity that end users, apcation developers and system ministrators badly need. Combility facilitates connectivity, portability and communication among platforms and users, which benefits both private and

The problem is that practically all vendors claim their products are relational or support SQL. Is ere any way to distinguish val-First, a truly relational prod-

# Quadram's JT Fax Board

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requires 190K bytes RAM,
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ment from a PC, wait in line for the facsimile and feed each slow-

the incumite and feed each slow-moving page in sequence. Vendors like Quadram Corp. and Gamms Link in Palo Also, Calif., think they have a better solution. For instance, last year Quadram unveiled its JT Fax rd for the IBM Pers puter and compatibles. Es-ally, the add-in card and acuct must implement SQL gively, which means that set nety, which means that set pro-cessing is native to the DBMS

engine, or back end. A product whose architecture was not origmally designed around SQL but has an SQL interface grafted on a one-record-at-a-time architec-ture will defeat relational proctivity benefits.

Second, the SQL impl tation must be complete. Com-pleteness refers to the degree of

fidelity to the 30 features of the relational model, supplemented by the now-famous 12 rules of Edgar Codd and compatibility with the de facto standard jointly set by ANSI and IBM. The rela (domains, tables, views, columns and keys), integrity (entity, ref-erential and user-defined) and manipulation (nine relational op-

erators and updatable views) fea-The 12 rules ensure that the model is properly implemented in accordance with the spirit, not just the letter, of relational intent. They mandate, implicitly or

explicitly, set processing, a sys-tem catalog, data independence — and thus optimization — and data or nulls.

systematic treatment of missing The standard defines the syn tactic form in which this func-

If you need to convert a Mi-crosoft Corp. Microsoft Word 4.0 document to one that has carriage returns at the end of

every line, choose TTY as

your printer, set margins at

ripulation

An ideal world ideally, standard SQL should be fully relational and should provide a model for vendors to follow. Unfortunately, as set jointly by ANSI and IBM, the SQL standard trails behind the advance made by individual vendors and itself to the standard trails belind the savendard. is likely to trail for the foresee able future. Consequently, user must evaluate DBMSs on stan-dard compatibility and extennions to it. The latter should not comflict with or deviate from relational intentions and should be weighed against the potentia risk of divergence from future

Neep in mind that the more relational products are still not fully relational but are closer to the model and are the only ones capable of adding the missing features. In fact, it is the precise surpose of an evaluation to screen out products without a nine and as complete as pos-

Next week, I will conclude with a discussion of front-end tools, connectivity and portabil-

Pancal is a Washington, D.C.-based in-dependent analyst and consultant spe-cializing in relational DBMSs and SQL on microcomputers and is affiliated with the Code & Date Consulting Group.

# The carriage returns

#### Minister chases Gerbil — back to the vendor BY ALAN J. RYAN

ASTON, Pa. - The Rev. Scott Cupp sat in front of his Tandy Corp. personal computer several weeks ago, working busily on a paper for one his doctoral-level classes. Suddenly, the PC locked and Cupp saw the word "Ger-doc" in the corner of the en along with strange-look

ing characters.

Cupp feared the worst. He thought be had been hit by a nasty computer virus. "I couldn't get the system to do anything. The whole thing locked up," Cupp said of his experience. "All had was what was on my

now days inter — inter many harsh words and losing a portion of his report — Cupp was told that Gerbil was the code name the developers at Software Publishing Corp. used when they developed PFS-First Choice, the markets in the state white for

though, Cupp went through his other files and discovered the Gerbil.doc designation in them as well. He thought the virus had spread itself.
Using Peter Norton Computing's Norton Utilities, the minis



Norton that allows you to go into ASCII files and erased them. I think I erased the access part of " be said. All told, Cupp said

Mistakon Identity Gerbil likely wound up on Cupp's screen because he mistakenly opened up his First Choice docu-ment as an ASCII file rather than as a document from First Choice, explained Dale Yocum, Software Publishing's First Choice project reassing 3-Prist Choice project manager. The characters Cupp saw were probably the random characters of a binary file. In desperation, Cupp contact-ed RG Software Systems, Inc., which makes Disk Watcher—a

product that helps protect against viruses. Ray Gisth, president of the company, took a special interest in Cupp'a cases, and after making several calls, found out where Gerbell had come from. Gisth said the problem, which is not unique to First Choice, is that it allows both its own First. Choice to Choice that it allows both its own First. oice program files and others, including communication

device and printer files, to be brought into the word processor in the same way a user would ror could leave the user qui baffled, he said.

Due to the virus scare, Cupp's schoolwork was disrupted: "It threw me out of whack for about three weeks," he said. But fortu-

#### Rosenthal FROM PAGE 33

ent exchange of the informa-on needed for duy-to-day oper-ions and increased support ity, his answer was an enthu-ic yes. Asked if he would be ng to pay \$100,000 for the dication and the

was equally positive: \$100,000 was a trivial cost relative to the efficiencies the application would create.

It just so happens that that application could be developed using Lotus Notes, which is being written to work with 05%. Once 05/2 is described in terms of what benefits it can

OS/2 is an enabling technol-ogy, meaning it provides many of the tools that make possible the kinds of applications that fundaier for the people involved - the and for OS/2 will simply

not be driven by the user who wants to do stand-alone PC ap-plications in a different way. In stead, it will be driven by the

ability to handle different appli-cations; those that have not been possible on the PC before or that have simply not existed because the tools haven't been there to build them. Some of e applications will be dri

by connectivity; some will be driven by power; some will even be driven by the graphical user No MIS director or information center manager can afford to turn down those sorts of ap-plications, regardless of the operating system they require or

Rosenthal is chief executive officer and chairman of the board at Corporate Software, Inc., a supplier of PC software

#### Fax board

PC into a facsimile machine so the user can send and receive files of text and graphics and print out the incoming file on a variety of printers. A 4.8K bit/ sec. moden resides on-board. The facsimile board concept is rapidly catching fire. Accord-ing to intermitional Data Corp. (IDC), a market research firm in Provident March 2 200 fee-

(IJC.), a market research from in Framingham, Mass., 1,200 fac-simile boards were shipped in the U.S. in 1986; 16,555 units in 1987; and 49,600 units so far this year. By 1991, the figure is expected to be 187,440 units, according to IDC.

ookin' good Andram's entry is attractive for Quadram'a entry is attractive for several reasons, users have said. The price — \$395 — is less than most competitive models from vendors such as The Complete PC — the Complete Fax costs \$499 — and the product is sm-

In addition, Quadram offers a In addition, Quadram offers a portable facamine board for \$495 that can be attached to a laptop computer, enabling users to send and receive text and graphics files while on the road. "I would be lost without it," said Michael Sussman, a PC

product reviewer at Mnenatics Videotext. Sussman is handi-Videotext. Sussman is handi-capped and lives in remote Up-per Black Eddy, Pa., surrounded by miles of farmland. "More companies seem to have facsimicompanies seem to nave racismi-le capacity and they do E-mail or telex, so this allows me to get right to them using the files on my PC instead of having to print the file and scan it."

Some reviews have criticized Quadram's board as too slow, but the speed is just fine for Paul

but the speed is just fine for Paul Connell, an attorney at Klipst-rick & Cody in Atlanta. Connell has a JT Fax Board on both his home and office PCs, en-abling him to send document a shing him to send document. Last winter, for example, a snow atom shut down Atlanta. "People in London don't care if Atlanta has an inch of snow."

Atlanta has an inch of snow."

Connell said. "Because I had most of the document on a disk-ette I brought home, I was still able to get the document to London on time, despite the five-or six-hour time difference."

# The Xerox Ventura P noble literature.





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#### Barney FROM PAGE 31

is a lot better than that! If a long-time resister like reen has discovered SQL, the rest of the Dhase community is probably not far behind.

Sorry guys. "Third party" is a troublesome term. At least it

got me into a jam. You see, in speaking with an upstanding member of the Dbase commu-nity, I was told that Ashton-Tate was holding a Dbase conferwas nothing a Dosse concer-ence and no third parties were invited. That's where the trou-ble began. What this person wa really referring to were third parties that also sell products

Dbase. He was talking about Ashton-Tate competitors. So here's the real deal. Most third parties are cordistly swired to attend the conference at the Century Plans Hotel in Century City, Calif., from Sept. 13-16. And of those invited, only one has declined, suyth Ashton-Tate. But those setting products that succeed by stealing Dbase sales still aren't weicome.

PC prices, Part 2. Last week, we ran an article about the end of that glorious era when PC prices fell often and fell a lot. PC prices fell often ann ren a sur. But just because prices are sta-ble today does not mean they will be stable tomorrow. Although there is some disagreement, an-alysts generally point to the easing of the dynamir. random-access memory (DRAM) chip shortage and the advent of the

lower cost Intel 80386SX chip as factors that may again push prices down — but when? One theory is that the well-publicated 80386SX (a cheapa 32-bit chip with slow 16-bit data path will create a domino effect. Cheaper laxel 80386 machines will drive down the cost of 286 machines, which in fact the state of the state of the cost of 286 machines, which in fall, any John Murphy, of Wold Associates. "By fall, you will nes some drope," he says. Another theory is than 386 prices will stay put for a while.

Another theory is that 386 prices will stay put for a while. 
"Prices won't fall until Intel cross-licenses the 386 chip, and t doesn't look like they are going to," says John McCarthy, director of Professional Systems

rector of Professional Systems Service at Forrester Research i Cambridge, Mass. But McCarthy has good news. He believes that once Mi-crosoft and IBM's OS/2 begins to take hold later this year (he's

to take hold later this year (he's as optiment), prices on machines unable to run the operating system effectively will fall. A similar theory is espouned by Care Pleig, director of research at International Technology Group, Pielg any there will be no major price cuts in the continuation of the continuat prices on anything less will fall.
Since prices won't be dropping
any time soon, it makes sease
to drive a hard bargain and
squeeze those dealers till they
lurt. That way they can really
cry on the way to the bank.

Barney is a Computerworld senior edi-

# **XEROX**

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#### tor, microcompeting. Northern FROM PAGE 31

for a variety of tasks, includi for a variety of tasks, including administration, time recording, billing and bookkeeping, said Olavi Ylanko, sensor partner with Procope & Hornborg.

But the best may be yet to come. "We have ander develop-ment a system for depositing our

ment a system for depositing our word processing documents into an archive, and we have a search facility to find our previous work, "Ylanko explained. The product, which took

three years to write as part of a joint U.S.-Finish effort, supports joint U.S.-Finish effort, supports peer-to-peer communications between workstations. It also supports C and boasts an extend-ed C language object-oriented programming environment for complex interactive applica-

The system, which runs pri-marily under Microsoft Corp.'s MS-DOS, sells for \$3,500 per server and \$1,395 for the objectoriented development system. An OS/2 version is available and will be enhanced to run with IBM's LAN Server.

#### PRODUCTS

#### Development tools

Computer Systems Advisors, Inc. has announced a software development tool kit for the computer-aided software

gineering marketpiace.
Called Picture-Oriented Software ngineering, or POSE, the package is sid to feature nine personal computerased modules for planning, design and control of the package in the pack

analysis of application software develop The product can use either a data- or a ess-driven approach and has an inter-similar to that of the Apple Comput-

er, Inc. Macintosh, the vendor said. The nine available modules include the Data Model Diagrammer, the Data Model Normalizer, the Logical Database Designer and the Database Aid, as well as the Decomposition, Data Flow, Structure Chart and Action Chart Diagrammers. The modules form an integrated set

but can be purchased separately. The aoftware runs on IBM Personal Comput-ers, PC XTs and ATs, Personal Sysrem/2s and compatible systems.
POSE is available at an introductory
price of \$295 per module or \$885 for a set of four data- or process-driven modules. Computer Systems Advisors, 50 Tice

Bibd., Woodsfill Lake, N.J. 07875. 201-391-5000. The property of the property A family of microcomputer-based super-visory control systems for discrete opera-tions in process and manufacturing plants has been announced by Boneywell, Inc., Called the Manufacturing Automa-tion Systems (Postroller (MASC), the systems were designed to optimize cel-and supervisory-level automation oper-tions, the veedor said. The utilar report-city integrate plant floor devices with sevent operation is total sixtum of produc-tions to records in total sixtum of produc-tions.

tems to provide a total picture of produc-Festures include a multiple-

Honeywell Industrial Automation Sys-tems Division, Phoenix, Ariz. 85023. 602-863-5144. Software applications

#### packages

Software designed for companies that provide technical support to their customers has been amounced by Tees, fine. Technical Support System, or Tess, was designed for on-line technical support transactions and runs on Apple Computer, Inc.'s Macintosh, Macintosh St and Macintosh II systems.

Sh and Macintosh II systems.

The package assists the technical-support process by providing an indexed customer-records database with attached free-form text records for tracking customer problems, the vendor said. It oper-

ates on a network of Macintoshes and can electronically mail support transactions across the network. Tess costs \$395 for the first user and

\$149 for each additional user on the network. Tess, 21075 Bank Mill Lane, Sarato-ga, Calif. 95070. 408-741-1519.

Advanced Business Microsystems, Inc. has added an IBM and Microsoft Corp. OS/2 version to its Platinum series of accounting and management informs

According to the vendor, OS/2 Plati-num, like its DOS counterpart, can support multiuser concurrent processing on local-area networks. Available application modules include Accounts Payable, Pay-roll, Accounts Receivable, General Ledger, Order Entry, Inventory, Fixed As-sets, Spreadsheet Interface and others. OS/2 Platinum modules cost from \$595 to \$1,995, depending on the appli-

Advanced Business Microsyst Suite 210, 19712 MacArthur Bivd., In vine, Calif. 92714. 714-851-8722.

#### Software utilities

Stairway Software, Inc. has intro-duced an add-in program for users of Mi-cropro International Corp.'a Wordstar

cropie insermancia corp. 2 mouses, software. Called Screenextender, the product reportedly manages the screen during Wordstar seasons to provide 25 rows and 80 columns of screen text. The number of rows and columns can be changed from Wordstar's opening menuor while editing a file, and as many as \$8 rows of screen text constrained. text can be selected.

The program works with IBM Personal
The program works with IBM Personal
Computer, PC XT, AT, Personal System/2 and compatible systems equipped
with an IBM Color Graphics Adapter, Enhanced Graphics Adapter, Video Graphics
Array or Hercules Computer Technolcomplex products systems.

ogy, Inc. graphics adapter. Screenextender costs \$59,95. Stairway Software, Suite 204, 700 Harris St., Charlottesville, Va. 22901.

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### **NETWORKING**

DATA STREAM Patricia Keefe

# Twisted-pair link saves bucks

San Francisco paper skips twin-axial for System/36 link, halves costs

### LAN vs. mini still puzzles



nary users still stumbling over edge of technology. Ve all have this mental vidlip of a razor-sharp Fortune 0, all grooving to a smartly inted network strategy fod on network management

While such may be the case for the Fortune 100 and perhaps even a good chunk of the For-tune 500, it just ain't so for the rest of the gang. Out of 33.9 on personal computers in-ed in U.S. businesses, only 18.33%, or roughly six million, are connected to local-area netrks, according to an IDC ana

By 1992, IDC is projecting an installed base of 52 million PCs, 35 million of which will be connected to something. That tells me that during the next three years, the managers of some 29 million PCs will find elves struggling to res ue that many people ought had long since gone av: LANa vs. multiuser sys-

Overwhelmed Users bemoan the dearth of in

formation exploring the pros and cons of the two approaches. "I can't find any information any-where," says a frustrated Velart, who is trying to decide

BY KATHY CHIN LEONG

SAN FRANCISCO - West Coast media titan Chronicle Publishing Co. got the scoop on how to cut wiring costs by 50% after it opted to link its IBM Personal Computer workstations to its at opted to link its IBM Personal Computer workstations to its IBM System/36 minicomputer using twisted-pair cabling. Chronicle Publishing is the holding company that produces the San Francisco Chronicle

daily newspaper and runs a host of independent television sta-

The twisted-pair approach is usual, since most users traditionally use twin-axial cable to link their workstations and terminals to the mid-range system. The firm made the switch

when the company moved to a new headquarters building last month. Although there are only month. Atthough there are only 10 users on the network now, the company has wired the en-tire building in preparation for future growth, Chronicle MIS manager Dana Hom said.

The benefits of employing twisted-pair cable over twin-axi-al are multifold, according to

First, the cost per port was approximately \$65 using twist-ed-pair, half the price of twin-ax-ial medium. The wire itself is less costly and the installation is costsy and the installation is cheaper because twisted-pair is a thin medium and therefore essi-er to install. The costs would have been brought down even more had Chronicle decided to

use a smaller contractor to in stall the cable, rather than Pacif Second, twisted-pair wiring vices to an IBM System/36 in

The dork side
The disadvantage of that configuration is that it requires taking all terminals on the chain of-line every time MIS wants to bring down one terminal. "In the old disadvantage was a lot of the control of ailding, this caused us a lot of ustration," Hom said. "One weren't up for another

The change in the cabling me-dium did not affect the speed of the data. While IBM publishes data. While IBM publishes ads of up to 1M bit/sec., Horn said his benchmarks show that the effective throughput is 9.6K

ring architecture, a workstation can be disconnected without affecting other users. Since there are eight wires on the twisted-pair and the System/36 Model D only uses two, Hom said the oth-

six can be used for future ap-He acknowledged, however, that the twisted-pair medium is not for all users. "This is un-shielded and won't work well in noisy environments," he

pair cabling is that it allows workstation users to be only 1,000 ft away from the System/36, as compared with 5,000 ft on twin-exial cabling. Hom said users are in nearby offices.

### DEC, IBM praise EDI to the sky

BY KATHY CHIN LEONG

SAN FRANCISCO - Archri vals Digital Equipment Corp. and IBM hardly agree on anything. (EDI), they are hum

As users of EDI gear, both companies said they have reaped cost savings and faster turn-around time from EDI.

At a recent EDI cor here sponsored by market search firm Input, Bill Carli DEC EDI electronic busin document services marke manager, and Bruce Jack

vested interest in singing EDI's praises, as both supply EDI prod-ucts. IBM sells EDI links into its

**Data View** 



### Rabbit cuts data deal

Rabbit Software Corp, in Malvern, Pa., recently completed an OEM agreement with Ericsson Information Systems in Stuttgart. West Germany, to supply data communications products to link Ericsson's

Eritron microcomputer fa with IBM's Systems Net Architecture environment Datatel, Inc. in Cherry Hill, N.J., has been awarded a con-tract valued at nearly \$500,000 by the Miami-based Dade Coun-ty Public School System for its Hyatt Corp. recently inked a pact with AT&T and Encore

Continued on page 38 nesigns LAN

### rning: Bargains can be hazardous to your network

Midtiglie dets

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#### DEC, IBM FROM PAGE 37

IBM Information Network (CW, May 2], and DEC recently intro-fuced VAX/EDI, software the company said runs on a VAX sup-porting value-added networks in

'Absolutely critical' jackson called EDI "absolutely

ritical" to improving efficiency. In three years, we want all 2,000 of our systems vendors to cate to us via our VAN," Jackson said. IBM is also targeting 37 manufact plants and 80% of its con-37 manufacturing

cations requests.
Today, about 20%, or more than 200, of IBM's suppliers and customers are trading products through the Information Net-work. At IBM plants, shippers and suppliers communicate via the ANSI X.12 standard using ications such as purchase orrs, shipping notices, invoices

### FROM PAGE 37

Systems, Inc. in Atlanta that reportedly will provide Hyatt ho-tels and resorts with a state-ofthe-art guest reservation and registration system. The system is slated to include Encore's Property Management System and AT&T's Unix-based 3B2/600 and 700 min

The California Department of Water Resources has agreed to perchase 92 System 9000 T1 multipleners from Digital Communications Associates, Inc. The multipleners will provide a high-speed buck-bone to connect 150 computer systems that monitor and control water distribution to two-thirds of the state of California, the agency said.

Gould, Inc. and Cray Re-search, Inc. have jointly devel-sped a 100M byte/sec. commu-sications link between their machinis max between unear respective computers, which Gould will market as part of its Supercomputer Front-End Pro-cessor, or SuperFE. Called the IUO/HSX Communications pter, the link is said to pro-Adapter, the link is said to pro-vide point-to-point connections between Gould's NPL System Bus and Cray-2 and Cray X-MP and Y-MP Unicos systems. The SuperFE is available now.

ibronics International, Inc. as signed what it claims is the art million-dollar contract to aplement the Fiber Distributed ata Interface networking stan-red. The vendor signed ar-preement to justaff the System nex fiber-optic network to link imputers supporting Italy's observements.

and electronic mail.

Using Information Network and X.12, customers can also tap into IBM databases to obtain technical and sales information or to submit orders for equip-

EDI use has cut transaction costs while cutting turnaround time. Jackson declined to provide weeks to three days, according specific details on savings but noted they are comparable to

those that DEC has experienced.

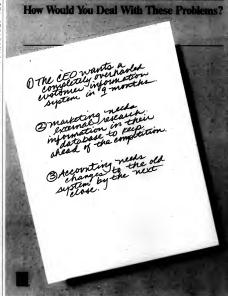
DEC'S Carisles claimed his ball its own X.12 software for company has reduced the cost of increasing a purchase order from any communicates with 35 tred. 135 to less than 332 wide parting the preparation time down in combination with both Teron two weeks to three days. Also, the time for order acknowl-edgment has dropped from five

Although DEC has no domes-

rvices value-added networks. Four DEC sites use EDI formats for manufacturing, pur-chasing, financial, marketing, field service and distribution acprocurement employees.

tivities. The comp makes more than 60,000 trans-actions per month using EDI

protocols. Like IBM, DEC's goals in-clude using EDI for 80% of its purchase orders, invoices and payments by 1991. DEC also said it expects to cut the cost of purchasing transactions by 85% and cut or redeploy 30% of its



#### Keefe FROM PAGE 37

how best to accommodate a user population divided into 70% word processing and 30% dependent on access to a central-ized processor. Her auditors have recommended a LAN, but her mini background has left her wary of LAN horrors.

Then there's Monica Then there's Monica
McLean. A vice-president of her
county Data Processing Management Association group,
she's also a computer systems
coordinator for PCs at the State Coordinator for PLs at the St University of New York at Stony Brook. "I have PCs all over the piace, and I'm at the point where I have to go to eith a mini or a PC LAN."

What's even more confusing

m when these users get double-tailized by large systems ven-dors. Take IBM for example. To listen to the Token-Ring sales representative, you'd think min-is were dead and buried. But then again, those IBM Applica-tion System/400 repe talk a good game of host access and FUD. "They really tell you dif-ferent things," McLean says. What to do, what to do?

Many consultants will rattle off, this mini primer to a micro solution: "The advantage of PCs networked together makes a more effective approach than either a mini or mainframe solution," claims Doug Gold, an analyst at DC.

PC LANS are lauded for or cuts and productivity boosts. At taching up to 10 users to a file er is much less expensive

than a similar configuration involving a mid-range VAX from DEC, IDC's Gold claims.

The rise of powerful 32-bit workstations and the downsains of host applications to the dealt-top has mide it caseir to apply PC solutions to what were once years as misscoupleter problems.

Other LAN advantages in-chale software that meer can exhibit the control of the case with which PCs can be moved, peripheral sharing and a plag-and-play approach.

O LISTEN TO the Token-Ring sales representative, you'd think minis were dead and buried. But then again, those IBM Application System/400 reps talk a good game of host access and FUD.

velopment time and expertise. Rick Hopfer, a vice-president at Shearson Lehman Commer-arity of the Commercial of the Commercial for a LAN over a min to auto-fer a LAN over a min to auto-mate several despartments. It is not only easier to find miror tal-confise of since to programming, he says, but applications take seemed to the commercial to the commercial seemed to the commercial confise of since to the commercial to applicate the commercial to applicate the commercial to applicate policies suite that may be tool to a specific hard-ware environment.

Going out of style? Obviously, heavy sears of record searches or disabase access total su consider the power of a searches or disabase access total su consider the power of a disabase access that the search of the power of a disabase servers and search of the search o

low-end minis as LAN servers within the next year.

Some users are already tacking minis reverse noto their PC LANs. Larworks, Inc., a Minneaponi-based systems integrator, is taking that route with a pilot for an 8,000-node government network. The mini functions as a computing server, processing large amounts of information quickfy, says President Harvey Freeman.

Keele is a Computerworld sensor edi-



#### ODUCT

#### cal-area networking

An Ethernet local-area network adapter card for the IBM Personal Computer AT and compatibles has been introduced by Gateway Communications, Inc.

and compatibles has been introduced by Gateway Communications, Inc.
Designated the G/Ethernet 16-bit AT adapter, the product is said to per-form file server data transfers at rate of 1,066K byte/sec. and features 64K bytes of on-board random-access memory. The card is fully compliant with the IEEE 802.3 Ethernet standard specification. The G/Ethernet 16-bit AT adapter

Gateway Communications, 2941 Al-ton Are., Irvine, Calif. 92714. 714-553-1555

Lacal-area netwarking software

A software package designed for personal computer communications has been released by Allcom Computer Systems.
The product, designated Allcom, is said to give microcomputer users several capabilities, including remote commun cations, control of remote printing and the ability to send and receive up to 30

files in parallel bidirectionally. According to the vendor, all these functions can be performed simultaneously. The product supports Xmodem and Kermit communi-

cation protocols Alicom costs \$120 Alicom, P.O. Box 3097, Santa Ana. Calif. 92073, 714-251-8191

#### Network management

The Interlan division of Micom Sys-tems, Inc. has announced a combination hardware and software product for LAN Manager DOS workstations. The LM9210-OSI is an IBM Mice Channel data-link controller that is com-bined with a host-based Open Systems In-terconnect protocol to allow DOS work-

te with an IBM and Microsoft Corp. OS/2 LAN Manager

The product offers either 16K or 64K bytes of dual-ported, on-board randombytes of duth-ported, on-board random-access memory and provides workstation support for Ethernet, thin Ethernet or un-shielded twisted-pair media. An IBM Net-bios virtual interface is provided at the transport layer for either LAN Manager functions or DOS. The LM9210-OSI costs \$595.

Micom Systems, 155 Swanson Road, Boxborn, Mass. 01719, 508-263-9929.

Logicraft, Inc. has released its latest version of 386 Ware, an Intel Corp. 80386-based DOS server that attaches to Ethernet to provide up to eight Digital Equipment Corp. VAX or Vaxetation users with access to personal computer soft

The package has been enhanced to provide increased support for the Vaxista-tion, allowing the system to display a full 25-line PC screen. Drivers are included for displaying static PC graphics with both the Regis and Sixel graphics stan-dards, and a Vasstation RX33 disk drive can be used for loading microcomputer

software into the system.

386Ware for four concurrent users costs \$9,995; an eight-concurrent user version costs \$15,995. Logicraft, 22 Cotton Road, Nashua, N.H. 03063. 603-880-0300,

Relay Communications, Inc. said it will ship an upgraded version of its micro-to-mainframe linking software early this

to connect up to 15 simultaneous sessions and permits asynchronous continuitions and permits asynchronous continuitions through IBM 3270 emulation boards at the same time. Additional terminal emulations include IBM 3101 character and block modes. Digital Equipment Corp. 5 Y1-220 and Y1-340, IBM 3278 Modeller, and August 1999 and 1999

Relay Gold 3.0 costs \$295.

#### Relay Com y Communications, 41 Kenosia Janbury, Conn. 06810. 800-847-41 Ke Ave., D 3529.

Modems/Multiplexers integrate facsimile, telephone, answering machine and copier functions into one ter-minal has been introduced by NEC

nerice, Inc. Designated the Nefax 3EX, the mi Designated the Nefax 3EX, the mul-tifunction unit incorporates a CCITT Group 3 terminal and a 9.6K bit/sec. fall-back and step-pu modem. The product of fers transmission speeds up to 15 sec/ page with other Group 3 units, according to the page of the product of the page with other Group 3 units, according The device measures 15.7 by 11 by 4.4 in. and weighs approximately 12 pounds.

The Nefax 3EX has a price tag of 2,395. NEC America, Facsimile Division, 8 Old Sod Farm Road, Melville, N.Y. 11747.800-782-7329

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#### MAINLINK II BY QUADRAM-A BEST BUY

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#### INNOVATIVE, EFFICIENT DESIGN -

Here at Quadram, we drew on our years of computer enhancement experience to implement the latest advances in microprocessor and custom chip rechnology. That let us slash the number of components on the board, cut out outs, and give you access to both major PC-to-mainframe emulation



MainLink II's half-card size means you can install it in any laptop PC—such as the Darasse<sup>®</sup> SNAP — that accepts add-on boards. You can turn that PC into a truly portable terms nal. The half card also saves precious space made the case of desktop and "luggable" PCs.

#### FUTURE COMPATIBILITY

Named of Book Name 2018

To assure continued com-sorbility, MainLink II3 design allows for soft-fooded microcode. This means future features and enhancements can be added with just a diskette

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MAC TOMORROW

## MACS ON MAIN STREET: ARE THEY MAKING IT?



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Is connectivity the key?
Penetrating the government
The DEC connection
Will dealers get left out?

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Direct vs. dealer

Edited by Glenn Riflin



# Seeking Its **Fortune**

Corporations take a shine to Apple. but Big Blue still dominates big business



pple executives are fond of showing visi-tors a recent report from Macenhash Business Review Initing the top 25 case tomers for the Macintosh computer. Electric Co., De Pout Co. and Federal Express Corp., the report is a showcase of Apple's remark-

he 128K-byte Mac to a largety dumterosco roup of corporate buyers.

However, a second look at the report offers a impue into the challenge that lies ahead in Apie's quest for respect from the Fortune 1,000, among the 25 corporations listed, only four have unchased more Macintoshes than Microsoft Orp. MS-DOS-based systems. And two of those control of the control of companies have special incentives to purchas Macintoshes exclusively — one is Apple's accoun-tant, Arthur Young Co., and the other is its adver-

thing agency, Batten Barton Duraton & Osborne.
The bottom line: Apple has made hig seroods in The bottom line: Apple has made hig seroods in Properties of the Control of t

customers who are open to alternatives have lik already purchased their first Macintoshes, obse ers say. The rest promise to be a more stubb ers say. The rest promise to be a more stubbon nedl, mainly because of a large installed base of IBM machines and their close relationship with the vendor. In a survey of 176 MIS managers on Com-puterword's Editorial Review Board, 71% said they had no plans to buy Macintoshes in the nex

you consider Apple's weaknesses. Chief among those are a lack of extensive connectivity tools

ee story page SR/6) and a failure to un-erstand the components that make up a rong relationship between a corporate mer and its computer vendor (see

untoners and its computer vendor (see torry page SR/A).

And IBM sin't sieeping, Even Apple ofkinks admit that IBM's Personal Kinks and IBM's Personal Kinks and IBM's Personal Kinks and IBM's Personal Kinks and IBM's Research IBM's Resear

hett-Packard Co.

Apple charges that Microsoft's Windows—on which Presentation Manager and HP's New Wave are based—infiniges on the Mac's user interface. The suit is widely seen as an effort by Apple to stall development of those potentially

frojan horse' uple officials insist that they don't ex-ect to displace IBM on desk tops at large unprorations. They say Apple will continue to work out the niches such as desktop ue to work out the niches such as desktop publishing, which gained the company en-try into a number of large corporations and which Chairman and Chief Executive Officer John Sculley has called Apple's "Trojan horse" into business. "We're delighted with arriving at a po-

"We're delighted with arriving at a po-sition where we are 10% of the business market in a beriod of between three to four years," says Jerry Malec, a former IBM executive with 17 years of experi-ence who recessity joined Apple as vice-president of business marketing.

ence who recently joined Apple as vice-register of business marketing. It is con-proposed to the proposed of the pro-posed of the proposed of the pro-posed of the pro-toness we won't be the standard within these companies, but we'll concein with the pro-toness we're pro-toness with the pro-posed of the pro-posed of the pro-posed of the pro-posed of the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the pro-toness within the pro-toness with the p

Donate Casey as vice-president of networking and communications. Perhaps Apple's greatest attention-getting tactic was its co-development deal with another IBM nemesis, Digital Equip-ment Corp., an announcement that kicked off 1988. So far, both parties have kept

off 1988. So far, both parties have kept their public in supers. Offering few details on their development plans. An un-concernent is a behalfed for this month at just developer's conference.

All that may not been enough.

All that may not been enough.

All that may not been enough.

All that may not be may be a superstand of the big-company point of view," iran committed any Wold, presented of The Wold Report to Edd-time of "The Wold Report to Edd-time of the Wold Report to Edd-time of

this kind of software."

"Apple doesn't understand the rela-tionship between an old-time IBM cus-tomer and IBM," Wold continues. "Tech-nology doesn't come between a

relationship like that." The presence on dealer sales may be a weak spot with which Apple will have to deal in the short term. While the company stubbonks client in ile the company stubbornly clings to dealer-referral program, IBM typically files its corporate customers to product

#### "Apple hasn't really understood the big-company point of view.

They treat them at arm's length."

AMY WOHL WOHL ASSOCIATES

briefings in a private jet.
Joe Vincent, director of technology planning at Hamana, inc., remembers a visit he made to the IBM facilities in Poughicepsie, N.Y., about 18 months ago. An IBM jet picked up Vincent and a en Humana executives at Hu

headquarters in Louisville, Ky. The pur-pose of the trip was to offer Humana "a peek under the kimono" of IBM's future hardware and software plans.

Despite a long relationship with IBM,
Humana is reviewing the Mac as a possi-ble contandard with IBM within the com-

pany. Among the criteria Humans will consider are the Man's ability to connect with the company's IBM mainferance and Personal Computers and the prepara-tion of the company of the prepara-"There is a substantial difference be-tween selling to an individual and market pile outcomer Timothy Turpsugh, vice-president of MR at Seafirst Bank, a Bankameria Corp. abbidiary. TBM has the individual belia has been heaved war-te individual belia has been heaved warthe individual but has been hugely suc-cessful in selling to corporations. "With Apple, it's the reverse," Turn-

paugh continues. "A'lot of big corpora-tions are buying products from Apple, rather than Apple selling products to big corporations."

# Can your async network oass this simple

Apple has added significant numbers to its sales force last year, Malec says, but the representatives are still expected to make the first call on a corporate custom-er, then refer the account to the approprier, then rener the account to the appropriate dealer. Even a loyal customer like Turnpaugh — about 94% of Seafirst's PCs are Macintoshes — comments that Apple sales personnel don't aways understand the needs of the corporate cus-

ners aren't just looking for a source of equipment; they are so ing a partner to help them implement h

tions, be adds. "You have to have guys who under-stand mainframe and networking probApple must resolve a long-standing dilemma: how to retain the loyalty of its dealer base while satisfying corporate customers who wish to buy directly from a vendor.

lems — who understand everything from top to bottom," be says. "When you sell to a corporation, you aren't selling boxes; you're selling solutions." Not only must Apple educate its sales force, it must resolve a long-standing di-lemma: how to retain the loyalty of its

dealer base responsible for Apple's early success while satisfying corporate cus-tomers who wish to buy equipment from a

Trav Waltrip, vice-president of tele communications at Travelers Insurance Co., says his company has only six Macin

toshes — used primarily for desktop pub-lishing — out of a total of 20,000 PCs. Unless Apple decides to sell directly to Travelers, it is not likely to make any

more sales there.

"Our relationship with IBM is not always warm and fuzzy, but it's close," Waltrip says. "It is very important to us that we deal with the vendor directly. "We don't just buy workstations;

We don't just buy workstations; that a only one component of our networking strategy," be continues. "A dealer just can't help us implement that," Waltrip has a vocal supporter in Jeff Ehrfich, manager of computer technology at General Electric Co., Apple's largest

corporate customer.

"Apple can't be beholden to a bunch of Mom-and-Pop dealers if it expects to be successful with corporations," Ehrlich contends. However, he adds, "Apple has sold a lot of products through dealers.

### Simple Test

1. Does your network provide for both wide area and local users?

Does your network support point-to-point, multi-point and Ethernet

configurations?

3. Is your network able to talk synchronous when necessary?

4. Can you easily add users, nodes and new

applications? 5./Can your network

recover from a disaster on its own?

6. Does your network management maximize perform mee and control?

and "yet" to any of these quantities, call the Cou

you've discovered your netwk should contribute more. st less, and be less time conning, the ComDesign Group N.E.T." has some great news or you: The SPX" family of products can help your present data network. Or, once you see what the SPX can do, you may even want to trade up your

entire network." We designed the SPX especially to accommodate different applications, speeds, protocols or local and remote sites into a single, efficient network. The SPX comes out of the crate ready to pass the toughest test of

Best of all, our ENA Network Manager gives you the power, visibility and control to fine-tune your network and to handle anplanned events comfortably

Test drive an SPX network on your PC. There's an easy way to find

out what our unique approach could do for your application. Take a test drive in the kind of network you could build with our SPX/ENA family and see

how it handles Simply call our hotline and sk for your of our

2ntline Arm-235-6935, Ask for

est Drive keene disk

pt. M46.

No

No

No

No

Don't look behind now Apple may have difficulty relying on its reputation as a leader in technology to sell Macintoshes now that the PS/2 has narmucinosses now tast the Ps/2 has nar-rowed the gap. In the Computerworld survey, more than half said that PS/2 with OS/2 and Presentation Manager will cause them to buy fewer Macintonhes (see story page SR/9).

Charlie Oppenh group manager, concedes that the PS/2 package offers a serious challenge to Mac technology. He prefers, however, to downplay the threat it represents, re-peating the new Apple credo: "We have it

It will be years until you have the applications available on OS/2 and the Pre-sentation Manager that are available to-day in the Mac environment,"

Apple says it hopes that IBM has created its own set of compatibility problem with the PS/2, which features a PC-in with the PS/2, which features a PC-in-compatible bus, and its advanced but also incompatible operating system. "It's al-most as though IBM shot itself in the foot." Humana's Vincent says. "Since the Mac Offers a comparable environment to OS/2 and we can have it now, we'll be

Apple is also telling corporate accounts that it has licked its communications prob-lems, but its approach relies heavily on third-party vendors. Many ing a wait-and-see attitude. ors. Many users are tak-

"The heavy metal is where the data is," Turnpaugh explains. "You have to connect LANs to WANs, and you need to

The first step Apple's current custo

by what they say is Apple's recognition of its vulnerabilities. Apple realized the weakness in its connectivity offerings and has worked to rectify them. It is wrestling with the dealer sales vs. direct sales issue, and it has hired the industry heavy-weights that have faced these types of problems before.

"Recognizing you have a problem — or opportunity — is 75% of the battle," Turnpaugh comments. "They under stand that they need to understand us bet

Publicly, Apple has cast aside its u bravado when discussing the encranty of the challenge that lies ahead. Openhei-mer concedes, "Just because you have the strap doesn't mean you have everyone on your doorstep."

Our clients are winning."

NETWORK EQUIPMENT TECHNOLOGIES

# APPLE LINKS UP



#### BY PATRICIA KEEFE

ole has taken a painfully long time to learn that in the eyes of MIS directors, no computer ridence that it has ed connectivity is its only rt to the inner sanctum of rate data centers ice low on the totem pole of

northers, Apple's much magnet data communications rategy has finally gained status functioning as the underpining of Apple's "democratic less top," a much-fouted campaign to penetate the Fortune 1,000 with Macistoshes moting user freedom of choice.

or Apple to achieve long-term and lucra-success in this arena, it also has to contive success in this areas, it also has to con-tider MIS's plotical about maintrame access.
"Connectivity is absolutely key became MIS's won't approve anything that won't talk to their environment," motes Tim, Bajarin, an analyst at Creative Strategies Research In-ternational, Inc. in Santa Clara, Calif. Once that really this frome, the Cupertino, Calif.-based wender lost little time making up-for missed opportunities. The last 12 months have witnessed a blast of product announce-man and technique nurrhasses (see story— and technique nurrhasses (see story—

In the past we were perceived to be be-

id in connectivity, and we want to correct tt," says David Nagy, Apple's manager of IBM connectivity products. Apple's message is that it will support in-dustry standards to help MIS leverage its in-vestments, but its added value will be to inte-

grate those standards with the unique capabilities that the Mac offers. capacitates that the what others. Clearly, the message is starting to be beard. Apple chains it has one million active network nodes installed, while Dataquest, Inc., a San Jose, Calif.-based research firm, estimates that 38% of the installed base of Macintoshes are linked to a local-area netes are linked to a local-area network. And a 1987 survey by Framingham,

John Sculley has launched a relentless campaign to bring together the IBM and Apple worlds.

Mass-based International Data Corp. of 169,000 installations worldwide gives Ap-pletalk, Apple's seven-layer architecture for connectivity, a 76.7% slab of the non-IBMcompatible personal computer LAN market Apple has tapped into the LAN market by efing up its Appletalk platform with connections to faster topologies, primarily Eth ernet, and has taken steps to prepare for the migration to IBM connectivity.

Has Apple turned itself around in terms scations? You bet!" says Bajarin, echoing the prevailing sentiment among Apple watchers.

To reinforce the message, Apple Chair-man John Sculley has launched a relentless campaign to bring together the IBM and Apple worlds. Realizing that MIS would be hap-ply with nothing less, Sculley has promised that Apple will match IBM's connectivity

"Our strategy is to support IBM's Sys-ns Network Architecture, which is found most of our customers' environments," most of our customers' environm utiley said in a speech given in Ja bur goal is to provide not only termin ation or PC-like functions, but also complete [IBM] office systems and ded data processing functionality."

od data processing functionality." Apple's ostatomers agree with Scalley's assessment. "Our strategy for the future is assessment." Our strategy for the future is glipt dependent on SNA," says fron Simon, schnical support supervisor at Applassee in soodined Hills, Carl Simon has one 15-node poptential pilot, but his networking plans re-view around his IBM systems. As far hards as October 1965, Scalley con-

pers the effectiveness of personal computers in organizations" and promised that Apple would implement the following IBM proto-cols and architectures: LU6.2 (with PU2.1), ken-Ring network, Systems Network Ar-tecture Distribution Services, Netbios,

chitecture Distribution Services, Nethios, Document Instructure, Document Content, Architecture and Distributed Office Support System Library services.

But it was desktop publishing, rather than those moothing architectures and protocols, that have moved a fair member of Most others and the Porticuse 1,000 of these than the Porticuse 1,000 of the Contents and the Porticus 1,000 of the Por (230K bit/sec.), low-cost imp letalk, for peripheral-sharing purpose

What will spur omnectivity between Macintoshes and IBM? between Macintoshes and IBM?

"MIS wants us to build upon
their investment in host data-bases," Nagy says. "They have
all this stuff sitting there in IMS,
DB2 or Oracle (databases) and
they would like, through the Mac interface, to access it. But they are also saying, 'Show me how this fits into my organization, and how it will leverage invest-ments I've already made in tech-nology, personnel and training.' Getting to the management level

What is standing in the way of achieving this integration, ob-servers say, is a significant laun-dry list: Token-Ring support, network management, support for Transmission Control Prote col/Internet Protocol (TCP/IP) and end-user applications that ei-ther set a standard in a particular area or that have companion packages in the IBM world.

Porting encouraged Analysts and users agree that it is imperative that Apple rally more IBM and Mac developers

to port their products to the op-posite environment. "Transparference," maintains Mark Freund, a consultant at the In-tercognect Group, Inc. in Pasa-dena, Calif.

Apple says it is moving to ad-dress the following complaints:

Token-ring card — Nagy says Apple will announce the card in November, with delivery set for the first half of 1989.

Network management —
This is probably Apple's weakest area. "In all likelihood, we will

network servers, IBM 3270 or Digital Equipment Corp. VT100 embation and Ethernet support — on third parties.

"The problem with Apple'a strategy is that Apple in now competing with IBM and DEC, says Thomas White, president of Infonetics, Inc., market re-searchers in Sunta Clara, Calif.
"Do IBM and DEC let third par-ties anoley set the trend for what: but that is a little bit farther out," Nagy says. • TCP/IP — Apple has been promising TCP/IP support since December 1987 and is now slat-

ing fall delivery.

Also unclear is Apple's response to architectures looming on the horizon — IBM's Syson the normal Architecture and the Open System Intercon-nect (OSI) model. Apple's efforts here will no doubt be bolstered

te a tradition of scing key IBM a

ties solely set the trend for what users see? Apple should be set-ting the standard in all areas." by its purchases this year of SNA Apple's integration strategy

Apple solutions		
1987 to 1988	1988 to 1990	
Appletalk, third-party server networks	Appletalk, third-party server networks	
3270/SNA	LU6.2/SNA	
Appletalk, DEC's Decnet	Appletalk, OSI	

OSL MAP, TOP DISPOSMATION PROVIDED BY APPLE COMPUTES, BUT, DESK FOR COMMUNICATIONS SOLUTIONS REPEARANCE CUE CHICAGO

In response, Apple is now taking charge, defining proto-cols, setting standards, offering tool kits and end-user products such as MacAPPC, Macworksta-tion, Macterminal, Appleline and

tion, Macterminal, Appletine at Appletalk PC. The new App

wants to provide the lower level services and protocols and is en-

ouraging third parties to target igher level areas such as com-

are developer Orion Network Systems, Inc. and Network Innovations Corp., developer of an SQL-based language.

Apple claims to be formulat-ing its OSI strategy now, with help from Touch Communications, Inc., in which it has a misent. Touch has a Mac OSI developer's tool kit on

Until recently, Apple relied for key areas of connectivity — file exchange and sharing, data extraction, protocol conversion, supports file sharing and other network services. Finalized in January 1987, the would-be standard has been a less-than-

shing success. Strongly sup-ed in the DEC world, it lags the IBM-compatible arens.

in the IBM-compatible areas.

AFP recently picked up some much needed and significant support from Novell, Inc., the Provo, Utah-based vendor of the Netware network operating system. The Netware port to the Mac supports AFP.

"Apple sees two million No-vell nodes and 1.5 million Macin-

vell nodes and 1.5 milion Macin-toehes and its mouth starts to water," fays Dennis Passavoy, executive vice-president of Da-talan, Inc. a Los Angeles-based network reseller. At a joint press conference in June, Sculley west so far as to say Novell gave the Mac an entry point into the DOS and OS/2 world.

Over-standardixed? Some third-party IBM-compati-ble network providers, such as 3Com Corp., do not support

AFP. They maintain that the Fortune 1.000 is reluctant to support even one more propri etary standard.

etary standard.

But in those large accounts that have standardized on the Mac, users most certainly do care about AFP compliance, according to Rick Richardson, national director of technology de-velopment at Arthur Young in New York. The Big Eight accounting firm has thousands of Macintoshes in more than 90 nationwide offices. "You better beve I care about AFP," Rich on says. "I want to offer

Mac users native file access to other resources: we never look

Still, support for APP is ex-pected to grow slowly, and to get onto corporate "buy" lists, Apple is going to have to do a lot more than don business suits, orin protocols and spit out devel-

oper's bits.

Apple sits to has to wis over
maintraine programmers. It is
a hope in the maintraine programmers.

Apple sits on misor problem, notes Thomas Node, a consolutant and principart at Industries, N, I should

ferrent terminology to describe its
terminology to describe

Apple has began to bridge
programmers to develop Maccompatible applications from the
condent of maintraine terminology. But some reverting of code

ogy. But some rewriting of coo ogy. Bit some rewining is still required.

A second, possibly more im-portant product, is MacAPPC, a tool kit co-developed by Orion tool kit co-developed by Orion and Apple, that implements LU6.2 and PU2.1 SNA protocols to allow the Mac to raik to BM hardware. The point is to baild on programmers' existing knowledge while minimizing culture shock.

Whether Apple can out-BM BM with retaining its unique capsibilities remains to be seen. In the mentitime, Apple must finish laying its connectivity foundations, escentia some end-

foundations, generate some end-user applications to make all these pieces play and somehow package all these varied compo-nents into a conesive, compre-

combined terminal emulation board is scheduled for mid 1989 and will run in Mac III

The product reportedly will link to IBM's 370 mainfrances and

System/36 and 38 minicomput-ers, supporting IBM's 3270 High-Level Language Applica-tions Programming Interface

## Also key is the Appletalk File Protocol (AFP), Apple's general-purpose network protocol that Glossary: Apple's connectivity plans

rcial applications.

nologies that will have a major

Apple Communications Framework — Guidelines and parameters that make up the communications architec-

MacAPPC — Apple's implementation of IBM's LU6.2 and PU2.1 Systems Network Architecture protocols. When coupled with a coprocessor coupled with a coprocessor board, software written using this developer's tool will link Mac applications with other Advanced Program-to-Pro-gram Communications (APPC)

replementations running on imputers such as IBM main-tante. The tool kit was slated

oper's tool that functions as an interface between the Macin-

tosh and host-based applica-tions and is targeted at mainme programmers. It allows a ac to be used as a front end to a host using a customized ma frame application while ma

traine application while man-taining a graphical interface. It supports Appletalk, IBM 3270 terminals, Transmission Con-trol Protocol/Internet Proto-col, RS-232 and Apple'a Com-munication Connections

Macterminal — A multifunc-tion terminal emulator that al-lows a Macintosh to emulate a Digital Equipment Corp. VT52 or VT100 terminalor an IBM 3278 Model 2 terminal.

Appletalk — Now called Lo-caltalk, Appletalk is Apple'a low-cost, easy-to-use, media-independent work group net-independent work group net-work. A \$50 cabling lot atta-ches to the Appletalk connector

toshes and Apple Laserwriters into a network. The network is hobbled by an industry-low speed of 256K bit/sec..

Appletalk File Protocols (AFP) — An Apple protoco used for interprocess communi-cations. Apple has had mixed success in trying to position AFP as an industry standard.

Appleshare — A dedicated file server for Localtalk net-works. It is said to support files works. It is said to support ries from multiple operating sys-tems and provides printing and file sharing along with security and other network administra-tor services. Macintosh Pluses,

Appleshare PC — Combined with Appletalk PC cards, this server software provides Mi-crosoft Corp. MS-DOS computers with access to an Apple

Ethertalk — Developed by 3ComCorp, and sold under sep-arate labels by Apple and 3Com, the Nubus-based card plugs into Macintosh IIs and apports connection to thin or sick Ethernet. The card works

with Appleshare and 3Com's 3 + network operating system. Token-ring card — The hardware is completed; soft-ware development continues. Based on the Macintosh Co-

Appleline — A terminal envi-lation and 3270 protocol consation and 3270 protocol conversion device used in conjunc-tion with Appletime 3270 File Transfer, which trans-fers files between a 3270 mainprocessor Platform, the card targets the Mac II and uses a Motorola, Inc. 68000 processor and S12K bytes of randomaccess memory.

The final product is expected to support Novell, Inc.'s Netware for the Mac, 3270 em-

Applefax — Includes m Appledax — Includes modem hardware; Resource software, which converts Macintosh files to Group 3 facsimile formats; Application Program, which lets users send and receive files; and the same fonts as Ap-APPC and the CCITT X.400 protocol while offering a choice of 4M- or 16M-bit speed. The cards are slated to ship by mid-1989. Pricing land p by mid-1989. Pricing has ple's Imagewriter LQ. Shipped in July, it costs \$699. 3270/5250 card - The

# If you think high performance comes with a high price, check Tandem Computers.

	Tandem NonStop CLX 620	Digital VAX 6210°
Price (5-year cost of ownership)	\$199,138	\$441,000
Performance	5 tps	5.7 tps
Fault tolerance	yes	no .
Distributed relational databases	yes	no
Linear growth	yes	
Results of the standard debit-credit bench	mark run by Tandem Computers and	of the benchmark run by Digit

### We give you a 2 to 1 price/performance advantage.

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advantage.

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## TANDEMCOMPUTERS OILTP is On-line Tundem Processing

\*All Digital costs and benchmark figures from "DECap Transaction Processing Performance," published by Digital in July 1988.

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# An Apple a Day Still Not the Way with MIS Execs

Seeing blue

The see of the see o

espite Appee 5 neightened efforts to heak into the Fortune 500 commercial acounts, MIS managers remain tosh. According to an exclusive survey of 174 MIS executives who are members of Computersorid's Editorial Review Board, only 37% have Macintoshes in

plan to purchase Macintoshes in the next 12 months. More critical to Apple, however

More critical to Apple, however, is the finding that 54% indicate that the coming graphical interface programs, such as Windows as Presentation Manager for IBM's Personal System/2s, will caustheir companies to purchase fewer Macintoshes.

The survey supports the view that MIS remains committed IBM Personal Computers or compatible machines as the corporachoice. When asked why their organization was presently not us Macintoshes, 68% responded that their company had standardin Also reflecting current indu try opinion, 60% of those re sponding who do have Macis toshes said they were purchase for desktop publishing, while 57% nurrhused Macintashus 6

Since MIS continues to hole sway in corporate microcomput er buying decisions, Apple mas find a way into this traditionally IBM bastion. Although 70% of the requests for Macintoshe

A key ingredient, according to the survey, is the ability to networ Maciatoshes into the mainstream computing environment within the company. Approximately 61% of the respondents pointed out the tetwork capabilities are either important or extremely important re

Forty-five percent were currently using Appletalk as the Mac nerork of choice. Nine percent said they are tied into DEC network

# Hard sell The la by hydrotechn here he a platear is subscribe expensions These year company the lab by Those your company the lab by Macintosine is use? These year company the lab by Macintosine is use? The year company the lab by Macintosine is use? The year company the lab by Macintosine is use? The year company the lab by Macintosine is use? The year company to be by Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is use? The year company to be year Macintosine is user. The year company to be year Macintosine is user. The year company to be year Macintosine is user. The year company to be year Macintosine is user. The year company to be year The year company to be year. The year compan

# MAC II VS. MODEL 70: A COMPARISON

#### BY CHARLES BERMANT

ike two Olympic runstretch of a race, Apple and IBM stay in top PC form by constantly forcing the other to look over its

Battle lines are now grawn with IBM's recently amounced Personal System/2 Model 70 and the Apple Macintosh II, released last year. Before the Model 70, the Mac was somewhat awkwardly positioned against IBM's only other Intel Corp. 80386-based machine, the PS/2 lodel 80. This is still an option. Model 80. I has in still an option.
The Model 80 is a better network server, but the Model 70,
with its welte design and burndown-the-bushes clock speed,
will be the machine against
which the Mac II will now be di-

IBM has weathered criticism for the lack of a cutting-edge product and its unwillingness to oduct and its unwillingness to ish the envelope of available chnology. For instance, the st PS/2 Model 50 locked users into a hard disk that was slow

mont is a San Jose, Calif.-based

than the recommended atandard for use with the Intel 80286 chip. It's not known what fine-tuning, if any, the Model 70 will require, but suspicions are that it will silence most naysayers. It is decidedly not a first-draft machine but a competent, full-featured personal computer that represents the maturing of the PS/2 line. To borrow a compatible homily, if you can find a better Microsoft Corp. MS-DOS

er vendor, you should buy it That the Mac'a strengths are weighed against IBM's offerings proves that Apple's claim to a higher corporate profile is no idle st. That the Mac currently can outperform its competitor's

latest offering surprises IBM partisans and, in fact, shakes the foundation of that loyalty. Both comp ies bristle at the suggestion of a head-to-head match between these two machines; they say it is an unfa

comparison of apples and blue-berries. The Model 70 runs ex-isting DOS applications at un-precedented speed but is intended to be a platform for OS/2 and its graphical user inter-face, Presentation Manager.



d'a PS/2 Model 20



Apple's Macintosk II

OS/2 proponents say it will of-fer far more than the Mac; Pre-sentation Manager will be a priority-driven multitasking operating system, whereas Mul-tifinder — Macintosh's multi-

tasking facility — is only a task switcher. Apple does not dispute this point but says that the Mac Apple disciples say they feel

the comparisons are unfair for the same reasons — equal sys-tems are not yet available — but draw different conclusions. The tosh and its graphically sed operating system are in il working order today, and there is no reason to wait the ex-pected 18 months for IBM'a Pre-sentation Manager to gain criti-cal software mass.

dware can be measured directly, the machines are best dged by the software that sup-erts them. For users, what each achine can do should drive the

While the Model 70 and the Macintosh II are available in a variety of configurations, they are comparably priced. Including disk drive, video, memory or to \$12,000 apiece. The Mac II does not emulate the ET-like vis-age of its sister products and is

What each machine can do should drive the

buying decision. Model 70. Both machines fit comfortably on a desk top, with the monitor perched directly on

For their respective po both use the most sophisticated nuccessors now available — Approcessors now available — Ap-ple's Motorola, Inc.-based 68020 and IBM's Intel-based 60366. Both use 3½-in. floppy disk drives; the same physical disks can be used on both but must be formatted to with the must be formatted to suit the respective systems. The Mac's base unit has no fixed disk, but a 40M-byte drive will be the minimum most users will need. IBM does not sell the Model 70 in a

ooes not sen the Model 70 in a floppy-only version; rather, the "bottom-of-the-line" unit al-ready has a 60M-byte, 27-msec fixed disk installed. Processor speed on the Mac is fixed at 16 MHz, while the PS/2 Model 70 MHz, while the PS/2 resource will be available in 16-, 20-, and 25-MHz versions. A faster pro-

lvantage but not a radical one. Each machine has a proprietary sys-

tem architecture governing its expansion cards — Nubus for the Mac and Micro Channel for IBM — and both were de-signed to facilitate data transfer. Support for both systems by third parties is cur-rently anemic at best but will certainly ex-

rently anemic at best but will certainly ex-pand during the next few months.

The Mac arrives with 1M byte of random-access memory, expandable to 8M bytes. At 2M bytes, the Model 70's RAM standard is IBM's highest with an upper limit of 16M bytes. Both machines work with the lower RAM levels, but most ap-

with the fower RAMI levels, but most up-plications will eventually demand more. Apple "power users" "the 5M pyries as a confortable limit, which the OSG requires the Company of the Company of the Company time to vary, but IBM vorus recent limited that the company of the Comp corporate it into the Mac environment. A

corporate it into the Mac environment. A single-machine/dual-software environment solution can thus only be a Mac.

The Mac II is itself expandable, featuring six slots — one of which is required for a video interface. The Model 70 boosts there have been with beautiful form with position. three, but the video, along with parallel (printer) and serial (communications) in-puts are built into the motherboard. The puts are built into the motherboard. The Mac, then, has one more net slot than the Model 70. Both machines have mouse and keyboard ports on the rear panel, al-though the Mac allows the mouse to plug directly into the keyboard and daisy-chain

Getting graphic
Both IBM 1 Video Graphics Array (VGA)
and Apple's graphics standard are analog
environments with the potential to display an infinite sumber of colors. Model
70 users are almost locked into VGA, coltent are assumed to the color of the color
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content by paided for what it is tolor, as
caused be paided for what it is tolor,

cannot be judged for what it is today, an most software support in forthcoming. Apple 2 and present-then monitor, a cumparate of the present of screen space than the IBM 8513. It captures less glare and its colors take on a deepth and a sheen the IBM machine lacks. With the range of options available, a Back and the present of the pre still investigate comparably priced third-

party options.
Video power boils down to software issues, with Mac graphics programs currently more plentful and easy to use.
Deaktop publishing, the application that for many users makes graphics practical, is possible on the PS/2 Model 70 but in one area in which the Mac has a hands own advantage.

Some corporate trainers estimate 100 hours are needed to gain DOS proficiency; Presentation Manager is expected to cut that time considerably. Still, it's not pard to get to a productive level on a PS/2, although many users don't bother to learn the subtleties of the system.

Macintosh users, however, find that if

Macouton users, however, find that if they master one program, they can use virtually all of them. After learning Dosse Mac, Wordperfect will be a snap. The same is not true for the program's Model 70 counterparts. Mac commands are hard-coded across the top of the screen; all programs design companyed from will

bard-coded across the top of the screen, all programs derive commands from pul-down menna. With the mosse-driven and per pul-down menna. With the mosse-driven and per pul-comes an intuitive process. It is here that the sharpest difference between the Mar. Il and the Model 70 emerges. On a hardware level, the machines are arguably equal. The Macintosh activates environment has a containing pow lacking in the PC world that results in a marked edvantage in the PC world that results in a marked edvantage edvantage

Manager aims to eventually achieve a similar unity. While IBM users see this evolution as welcome and something that will effectively designate the strane DOS command structure to the trash heap, Mac fins have little sympathy or patience. Presentation Manager, they feel, will only be a clumker version of what the Marchest Marchest Park Processing Command Structure of what the Marchest Park Processing Command Structure of What he was not processed to the processing th

will only be a clankier version of what the Mac already offers. With the Mac's consistency ones. With the Mac's consistency one certain rightly, as it can only vun pro-grams specifically vertice for its initial locu. If the Model 70 is "chanker," it also more flexible, incorporating OS/2 po-tential while materianing DOS shiftly offers with the control of the control of the control of the steam — or if it fails to reach its potential — the Model 70 can use the current soft-mare platform to the best obstruction.

The choice between the two: The choice between the two m will only be easy for those who coe a vacuum. For ease of learning, a continuity and sheer visual pow Macintosh quickly and obviously as the best choice. But coppe places where IBM has established le strength, are not vacu erable strength, are not ver-Apple's corporate gains come not much from an embrace of the hardw but from an acceptance of some of Mac's concepts, IBM, consequently, determine what aspects of the Ar-charter its customers desire and only own alternative or work-slike solutions. This competition's ultimate result is mu-chines of unprecedented power and scope on the deak top today. While Apple and



-1=

# Is Innovation Still at Apple's Core?

#### BY PAUL FREIBERGER

pgle is at a crossroads. For years, it has played the hare to BM's tortoise, and its quickness has given it a technological edge and allowed it to prosper. But today its lead is wasing, With BM's Personal System? Zinc, other 32-bit mechines and the spread of the Macintosh interface, competitors are closing in. The big question hanging over Apple is:

Can it spurt shead technologically once

There are signs Apple is worried about its sipping edge. Its recent lawauit against Mi-crosoft Corp. and Hewlett-Packard Co. is a clear attempt to prevent grafting of the Macintosh framework onto the PS/2 and suggests that the 4-year-old interface remains vital to company plans.

gests that the 4-year-did interface remains valid to company plane, currently riding has created in high because of the visionary thinking of Stere plots, which appeared in the Macinton hand the Laserwriter," any Brist Material of Strangers, a software consulting firm in San Francisco. "Many of those people are gone. That, coupled with the fact that Apple is becoming more, not been, concerned are gone. That, coupled with the fact that Apple is becoming more, not been, concerned causes concern about the ability design, causes concern about the ability design, ward and come up with the next generation of technology."

Though proud of their accomplishments to date, those within Apple realize the challenge. "We stake our future on Apple's ability to differentiate its platform," says John Zeisler, vice-president of marketing.

The Apple keynote has always been credible innovation. Despite such noted failure as

ble innovation. Despite such noted failures as the Lisa and the Apple III, the company has generally displayed a good sense of timing, II offers budding technology jeas when it is ready for general use, thereby legitimizing it. With its combination of market savey and technical flair, Apple is following a two-pronged strategy for the future: Exploit the lucrative Maccanton to the hit

and cast about for importations to perfore, introduce and legistrate.

The first approach is something of a holding action. The Macinton earns tremendous profits — the company recently reported a neet iscome import of 71% for the fiscal third quarter — and Apple wants to press the advantage home. Exit Wins, an independent Silver on Valley marketing consultant, estimates that Apple receives 72% gross profit on every Macinton's SE it wells to deleter. The company needed its second quarter stritting on Sel 11 million in cash with virtually

Apple is advancing along a number of fronts. It is expanding and diversifying its Macintosh line. It also has a Unix workstation. Al-

After the departure of Steve Jobs, some are concerned that Apple won't be able to differentiate its platform enough to ride the high-tech wave into the future

Freiberger is a business writer at The San Francisco Esseniner, McNeill is the author of several books about computers and is based in Southern California.

though the software is not yet in inal form. He Unit system is currently available. And Apple in creparing to release a Motoroia, inc. 68030-based Mac and a intopy Mac around the end of intopy Mac around the end of inyear. It is also upgrading its operating system — offering tore-mailtriaking, enhancing its screen display, linking the Mac with office mainframes and minis and enhancing communication and enhancing communication.

ann ennancing communication among programs is diversifying the fine. Apple's awedge into corporations is the Mac II, but is it enough? "I think Apple has only one product well suited to Forme 1,000 accounts, and that's the Mac II," says Bruce Lupation, as analysis at Hambrecht & Quist, Inc. in San Francisco.
"They need to burry up and have

some complementary offerings. One is a 68030 Mac and one is a laptop Mac."
Reports indicate the 68030based computer will be a floorstanding as opposed to a desktop machine, designed to compete

Not everyone
finds the
spectacle of
professionals
conversing with
cartoon figures
enchanting.

efrectly with IBM's most powerial PS/2a. The device will support at least six users through Apple Desktop Dus connections. It will subled read-only memory than the property of the property of the built-in Ethernet connector. The nucleon could also have a builtbuilt-in Ethernet connector. The nucleon could also have a builttime of the property of the protaining drive, though this enmany drive, though this entance the property of the protain of of the

as option.
In addition, it will offer true
multitaking. "They need to
evolve into a fail multitasking over
ovive into a fail multitasking operating system." say William
Sattuck, an mulynt at ModaSattuck, an mulynt at Modasattuck, an mulynt at Modatastuck with Switcher, achtware
that allowed programs to be
moved in and out of memory
foreground and background,
which has been improved on
with Apple a Multi-Pinder. But
complete multitasking is become

Wish list
"We need full multitasking,"
says Tom Lafleur, director of engineering at Qualcomm, Inc., a
satellite communications firm in
San Diego. Lafleur makes sys-

company and has already bought bundreds of Macintoshes. He says multitasking will assist him by allowing for concurrent use of software development and electronic mail programs.

software development and electronic mail programs.
Richard Shaffer, editor of the newaletter "Technologic Computer Letter," adds, "If they're going to go at the workstation market, they need a better multitasking operating system. They've said they'll do a rewrite of the operating system. They need to do it."

The 68030-based machine could debut as early as this October, but plans are uncertain, and the limited availability of components for the 68030 may push the date into 1989.

Laptop shead?
The company, according to recent reports, is also developing a laptop will have Motorola's 16-MHz 68HC000 CPU, three chips specific to another.

cations, an active-ena.

trix screen, a track
ball, an eight-hour baitrix screen, a 2004- or 4004byte hard disk and perhaps a 1.44M-byte
disk drive. It, too, it expected to appear this
fall or early next year.
The inpton may not be
a major product, but it
could occupy a valuable
niche. And offering
Mac capabilities on a
lapton gives Apple another technology edge.

Apple wants to promote the Mac II as a

mote the Mac II as a workstation, and to that end it is developing its own version of Unix, called A/UX, which boasts a Macintosh "look and feel." The firm stroduced it last year, selling a version of the Mac II with A/UX. But it is not seen bec

ing a mainstream product until more features important to workstation users are added to AUX. Unix is a formidable operating system, and Apple wants to cover the flank where Sun Microsystems, Inc. lies with its own Unix workstation

Apple in pushing the Macthrough a writery of other means, lack-ling software and means, lack-ling software and means, lack-ling software and means and the software software the stumming praptical distalance and programming tool. Introduced to the kind of onless and salts that normally great fireworks, Hypercard has so far remained rather dormant. It could stuy just a brilliant toy or evolve into a

rather dormant. It cours may juna brilliset toy or evolve into a dominant and influential interface — a new standard. "Nobody here uses it," says Qualcomm'a Lafleur. "It just takes time for someone to get that it see write amplitude."

think it's going to take more time to develop."

It's a very useful tool, but there is a significant learning our to figuring out how to use the state of the sta

there is a significant learning curve to figuring out how to use it," notes Lupatkin, adding that Hypercard alone is not yet leading corporate users to buy Macintonhes. "Yet Apple is basically a technology trailbiaser, and sometimes it takes a while for the world to follow suit. That was true with the Mac and the

graphic interface."

Apple is also investigating interprocess

Communication, called cooperative processing,
which involves the automatic
transfer of data from one program to another. "For instance,
if you're running a stock retrieval program in one window and a
spreadsheet in another, when

the stock retrieval was updated, it would automatically update the spreadsheet" and any other programs that depended on this data, Lupatkin says. Apple has also announced to

Apple has also announced to developers that its fall upgrade of the Mac operating system will probably include an interapplication facility, or IAC. IAC resembles Hot Links in Lotus Development Corp.'s Modern Jazz and offers a way for programs to swap information without dealing with fow-level protocols.

Also critical in display technology. The Macintosh screen

swap information without dealing with low-level protocols.

Also critical is display technology. The Macintoul screen scheered its crisp what-you-seeis-what-you-ger recontions at the expense of use, and users have long complained shoot tunnel vision in their work, As Stratagers' a Muter toos, "Apple has got to find a way to par larger screens in every Macintous, hoopie-trying to north within the confession of the contract of the contraction of the cont are suffering a severe productivity penalty." Apple is almost certainly following this advice.

To second avenue to innovation is that of the internal visionaric-kyrho view Ague as a company with a time-hallowed mandate to bring slick, easy-touse computers into the home and office. Jobs was noted for pashuse Ague into new technological avens, and the company still has some of the leading computer scientiza in the industry, includrating Alan Kay and Larry Tessier.

ing Alan Kay and Larry Tessier.
Their mandate is to push the
company shead with technology.
The Mac stemmed from this
drive and will provide Apple with
the surest future technological
edge. Among the possibilities:
reduced instruction set comput-

ing (RISC) computers with special-purpose chips, an audio-video interface, color laser printers and, perhaps, the ability to cast a global net for information

for information.

"91 surges!
By 1991, Apple should
be unveiling a new ine
of computers." Apple
has to keep the hardware platform well
above IBM'n," says
men source close to the
company." They then
you would be the says
with a surgest of the says
with a surgest of the says
will in early 1991."
Some of its features
are expected to include
the followings.

are expected to include the following: • RISC-bassed CPU. The RISC CPU could be a good example of the Apple hunch for offering innovation at the right moment. RISC chips already exsist on some machines, and RISC coprocessors have appeared on boards for the Mac II.

But Apple is expected to bring the technology to the mass market and use it to expand its technology edge in several arcas, such as graphics and user interface.

The 1991 muchine will likely center on a RISC-based CPU, according to an informed source. "They have to be looking atsome sort of RISC-based RISC-based for some sort of RISC-based requirenesses," and to the provide a prioriperformance requirements," add Montgomery Securities 'Shattuck.

Audio-video interface. Ap-

Audio-video interface, Apple has been demonstrating an audio-video interface festuring an on-excern "agent," a cartoonlike character that speaks to you. For instance, you could turn on the computer and it would say, "Mail writing," if you responded, "Open file such-and-such," the agent would open the file. Apple is previewing this idea now on its Cray Research, Inc.

it will personalize interaction with the computer as never be-

fore.
"Merging audio-video and computer technology and throwing in communications for good

measure is a very, very serv market." Apple 2 Entire rays. But pitalis bark here. Not everyone finds the spectacle of in-telligent professionals converting with carrioon figures on the converting with carrioon figures on the converting with carrioon figures on the converting with the c

I hey have to lay down their bets, but they may be wrong." • Display. Apple is almost certainly developing a superior display. "We want a computer that gives as clean an image as a color TV, and that's about to happen,"

TV. and that's shout to happen."
one insuder state.

Printers. Apple is also likely working on a higher density in ser printer, and possibly a color output what they did for black-and-white, I thank they' do lare a real winner," Staffer says, "If they could combine Jipanese hardware and their cown clevenose in a notivere as in Posterier, it would be a sensution. I don't see why't can't he done."

see way teat to gone.

\*\*Roovledge Navigateer. In
John Sculley's book Olyssey, he
describes a oncept called the
Knowledge Navigator, in which
the Mactitoth would automatically acus electronic nechives
throughout the antion and download articles, maps and charts on
whatever logic users selected.

The Knowledge Navigator
would employ the aution-rideo interface, and Apple has developed
a terminist fineterminist fine
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would employ the audio-video in terface, and Apple has develope a sturming five-minute video de picting it.

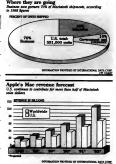
Thinking about
Even Sculley does not expect
this wonder before the 21st century, but Apple is already taking
steps toward it. It is developing
communications chips and desiltop terminal adopters to work
with AT&T's Integrated Services Digital Network, a voice,
video and data transmission
scheme expected to become a
global communications network
for businesses and residential

Whether Apple can develop all these innovations by itself-remains a matter of debate, but with its plamp catability of any itself and any smatch up firms with promining products. It has always match up firms with promining products. It has always and a solid promining products. It has always alw

# NUMBER, PLEASE:

A graphical look at Apple's progress in the never-ending quest for a bigger slice of the computing pie in the corporate heartland

	Suggested	With 50%	-
47.	price	Greenst	MS-DOS I
ncintosh Plus M byte RAM*, ingle 800K-byte drive	\$1,799	\$1,259	\$1,699
acintosh SR M byte RAM, dual OOK-byte floppy disks	\$2,896	\$2,029	\$2,999
acintosh SE M byte RAM, single 00K-byte floppy disk, ingle internal 0M-byte hard disk	\$3,698	\$2,589	\$3,999
acistosh SE "plus" Expected) Metervils 68000 Metervils 68000 Meter AM single .6M-byte floopy itst, single internal OM-byte hard disk	\$4,296 -	\$3,008	\$4,999
acintosh II M byte RAM, dual 00K-byte floppy disks	\$3,898	\$2,729	NA <sup>3</sup>
scintosh II Expected) (Limited lots) 1M byte RAM, ngie 1.6M-byte oppy disk, single sternal 20M-byte ard disk	\$4,598	\$3,219	NA.
ncintonh II M byte RAM, single 60K-byte floppy disk, ngle internal 40M-byte ard disk	\$5,498	\$3.849	\$6.499
Acintoek II "plus" Expected) Motorois 68030 based) M bytes RAM, single 66M-byte floppy disk, ngle internal 80M-byte hard disk	. \$8,500	\$5,950	NA.
acintosh II "plus"	40,300	\$0,700	- 144
pected) 030 based) 2M bytes M single 1.6M-byte py disk, single		•	





g well at DEC sites

INFORMATION PROVIDED BY CONCUTED DITELLICION

# SOME MAC STATS

Planned purchases at IBM shops
IBM and play-compatible mainframe sites' buying plans show
Apple still has cut only shallow inreads to the business market

PERCENT OF PLANSED PC PURCHASES

BM PC XT



STORMATION PROVIDED BY FOCUS BISSLANCE STRIPPING BY

Planned purchases at the Fortune 1,000



INFORMATION PROVIDED BY COMPUTER INTELLIGENCE CY COM

#### How the Mac stacks up: A comparison of the Macintosh II with leading competitors

	Apple Recision II	Destroy 13 Septem 13	Microsystems	Company 380/30	Microsystems Sun 3061/250
MIPS rate	2	2.5 to 3	3	4	5
Key operating system	Multifinder	MS-DOS	SwOS	OS/2 or MS-DOS	SunOS
User interface	Window, icon-bar menu	Window, bar mean	Window, icon-ber mean	- Window, bar menu	Window, icon-bar menu
Maximum user memory (in byten)	1.5G	16M (OS/2) 8M (MS-DOS)	3G	16M (OS/2) : 8M (MS-DOS)	3G
DOS asseious under standard operating system	Single with optional coprocessor	Single (OS/2) or multiple (MS-DOS)	Multiple	Single (OS/2) or multiple (MS-DOS)	Multiple
Unix capability	Optional: Apple A/UX or Unix-Mac	Optional: URM AIX or Unix-DOS	Standard: SunOS	Optional: Unix-DOS	Standard: SunOS
Standard processors Transpurer	15.7-MHz Motorola 68020 CPU, Motorola 68881 math coprocessor	16-or 20-MHz Intel 80386 CPU	20-MHz 80386 CPU, Intel 80387 math coprocessor	20-MHz 80386 CPU	25-MHz 80386 CPU, 80387 math coprocessor
(in lytes)	1M to 8M	1M or 2M to 16M	4M to 16M, 32K cache optional	1M to 16M, 32K cache	8M to 16M, 32K cache
Internal hard- disk options	40-macc 20M-byte, 40-macc 40M-byte, 30-macc 80M-byte	40-marc 44M-byte, 30-marc 70M-byte, 28-marc 115M-byte, 28-marc 314M-byte	18-macc 91M-byte, 17-macc 327M-byte	30-msec 60M-byte, 20-msec 130M-byte, 20-msec 300M-byte	18-msec 91M-byte, 17-msec 327M-byte
Manufacturer- supplied graphics	640 by 480 16- or 256-color	16-color, 1,024 by 768 256-color	1,024 by 768 1,152 by 900 256-color	640 by 480 16-color	1,024 by 768 1,152 by 900 256-color

DIFFORMATION PROVIDED BY WORL ASSOCIATES

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# Mac Catches Fancy of Owens-Corning



"We said, 'Hey, we ought to buy one,' and soon people were fighting over who would use it. One grew into two. and it just kept growing from there."

The corporate PC is IBM.

And you were the catalyst to get them in? Yes. I had gotten some comput-er training when I taught at Penn State, and when I came here to

two PCs in here, but they had no

I knew a couple of local deal-

the way of word processing, it's all page layout programs . . . Ready, Set, Go, things like that. Excel is the spreadsheet of choice, by far. We've got all kinds of database files set up for everything from blueprint track-

work, I saw a group of engineers and engineering support people who had no computers. They had kind of capabilities that, for what you're paying for them, I don't know if I could justify going out and buying a \$30,000 worksta-tion. Also, our engineering group is different than others. We don't have any full-time, ded-

What about the Mac as a networking tool? It's one of the concerns MIS has expressed. Will you people be an island unto yourselves? Will you

Corporate measquarters in use Lotus 1-2-3 format and still read it into Excel. There's no real big hassle with any of that. And peo-ple up on the other end don't know that the document they

counterparts. We ran a test with

3000 that we don't have up here. The project manager said be actually liked the Mac II environment better as an emulator on the HP because be could copy and paste and move all the HP data around to other packages in the Mac environment.

hat about supporting dual stan-rds? is that why there is corpo-

to resistance? s. One of MIS's concerns, and rightfully so, is that there is going to be duplica-tion of effort. We have had that happen. MIS is in a position of limited resources, and they just can't get to all the plants to satisfy all the needs. So a lot of us on the plant level have found that we can't wait for them to make the change. We're going

on you eventually hook the coratewide environment to-ter, will that present a prob-

it could. That's something we've dis hat we've tried to do here and

"What I'm not seeing

is enough development in the Mac II for specific programs."

with other people in the company is point out that in areas where we have our own out that in areas where we have our own local data and we're the only ones using it, we should have autonomy to do with it what we want. That's pretty sering among all the plants. There's a strong ownership... "Hey, we know what our ownership . . . "Hey, we know what our local needs are, and we need some cree control over developing resources

auve control over oversping resources to satisfy those needs."

MIS says, "That's fine for certain things, no problem. But what happens in the future for on-line purchase orders, for example? Are you all going to be able to compute across the board when it comes to something like that?" And we have had meetings with corporate people where the manufacturing people got together and said, "These are the kinds of services we'd like to have that are global in na-ture" rather than just local data facilities. uestion has come up, "How do we the Mac people and the PC peo-

of is that as long as third pa are making good emulation packages for the Mac, it's really no different accessing that data from the Mac environment vs. the PC environment

eat about advance in IBM's Personal il Presentation Mar at make it more dif t make it more diffici in favor of the Mac?

I don't know yet. I haven't seen a lot of motion from our company yet to push in the direction of Presentation Manager or OS/2. All the PCs they are buying are PS/2 machines, but the focus is still on PS/2 machines, but the focur is stim on MS-DOS. I brought that up at a few meetings; MIS is concerned about having the two environments, PC and Mac. And I said, "You're going to have two environments within your own PC group here pretty soon." So far, they're taken a wait-and-nee attitude toward OS/2.

s MIS stated that one of the oblems with the Mac is that by don't want to go through dealers, they want direct acce to Apple? That's not really come up. Their bigs concern is what if I quit, or what if I die?

Do you see any other savironments for Mecintoshes emerging within the company?

On yes, People interacting with our department will come in bere and see conthing we're dose for them. They'll say, "That's nest, how ser you doing that? That's nest, how set you do that on a FCP fad we will not seen that they see the seen of the see

ing text and graphics. The other big thing is ease of use. They don't care if it's CAD or deaktop presentation or whatever. They say, "Hey, you mean I don't have to type in all those commands?" That's captured some people's fancy.

re there drawbacks with the

Mac? A first, the big drawback was the small screen on the original Mac Pluses. For those people who still have them now, it's a bit of a drawback. You just can't see the whole page. In your spreadsheets or databases, you've just got to limit your view area. When we took a bunch of people and upgraded them to Mac Ilis, they said, "Wer this is nown! him to the people with the peop w this is great, big screen, more d." Then they complained that the

Mac IIs were too big to take home

If you could give John Sculley ad-vice, what would it be? The first thing is drop the price, bring the Mac Plus and Mac II prices down a bit.

Also, push a little faster on some connec-tivity issues. There's a lot I hear is in the trity issuet. I neve a not a mean to a works, the peer-to-peer connections, the ability to connect with VAXs, but I don't see a real focused strategy yet. All the bits and pieces are there, but I would like to see them pull it together. I'd also like to them'tawn writine more applications see them'start writing more applications for the Mac II specifically. What I'm not seeing is enough development just in the Mac II area for specific programs to take advantage of the higher speed, higher performance CPU.

## Until now, there was one probler ntroducin the Wang VS 5000.

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WANG

# **Uncle Sam** Salutes the Mac



BY MITCH BETTS

lowly but surely, the -compatible micros the U.S. gove Even so, it sometimes seems as if it takes an act of Congress to buy

The U.S. Air Porce, for exam-

ple, has such a strong bias to-ward the Microsoft Corp. MS-DOS world that when the Strategic Air Command (SAC) in Omaha wanted to buy a hetwork of 60 Macintoshes, it had to ob-tain a waiver from Gen. Robert H. Ludwig to stray from the Air Force's standard contract for Zenith Data Systems' PC compatibles. Col. Joe LaBenne, deputy director of ad-vanced systems, undertook the rigorous pro-

cess of justifying a waiver from the Zenith standard. The Macintosh II and SE were the first products to meet SAC requirements for graphics, common user interfaces and low-cost training and networks, LaBenne says, "and I would not give up until the procureent met my requirements." Mac evangelists like LaBenne, with help

from Apple's new federal marketing group in Reston, Va., are gradually breaking down the barriers to Mac penetration in the feder-al government. "It's been a successful strategy, but there's still plenty of opportunity for them to expand," says David Powell, a workstation specialist at the National Institutes of Health (NIH) in Bethesda, Md. Apple has gained a 5% share of the federal

sicro market in the short time it has been a grificant player, but that is dwarfed by the

Betts is Computerworld's Washington, D.C.,

50% share held by IBM and the 23% share held by Zenith, according to Computer Intel-ligence, a market research firm based in La

Thomas Young, an analyst at Computer Homas Young, an analyst at Computer Intelligence, indicates that Apple is steadily gaining on Compaq Computer Corp. and may surpass Compaq next year as the No. 3 micro supplier to Uncle Sum. About 90% of the Ap-ple micros sold to the government are Macintoshes, he says. Apple's window of oppor tunity for capturing federal market share is not unlimited, however. One expert says the Macintosh and IBM's Personal System/2 are locked in an "interesting horse race" to see which will be the government's next de facto standard. While the loser is not locked out tely - a waiver can be had to permit a deviation from the standard - the road is

anch tougher through the bureaucracy.

Apple's board of directors decided nearly
two years ago to gain some credibility in the
federal market by opening a local office and entering a few procurement contests, says C. Lloyd Mahaffey, director of Apple's FedApple beeled off 5% of the federal PC market from

Zenith, IBM

eral Systems Group in Reston. Before then, "everybody in the ple was a toy company," he says Last December, Appl

isunched the second phase of its (ederal effort. The size of the graded on the Apple organizational chart as the Federal Systems Group and reorganized. The federal group now has separate of tions staffs for civilian and defense/i gence agencies; seven branch offices in key cities; and a Complex Systems Division to

deal with systems integrators, such as Plan-ning Research Corp. in McLean, Va. Most federal buyers have their eyes on Most tederal buyers have their eyes on the Mac II because it is suited for use as a graphics workstation or low-end engineering workstation, says Tom Ellis, president of Falcon Micropsystems, Inc. in Landover, Md., the largest Apple reseller to the gov-

rument.
"We're in the second wave of Apple usrr." Ellis sayr. "We've gone beyond the 
facintosh champion for guru to a much 
roader base of users now."

Daniel Adkins, past chairman of the feder-

al special interest group of the Washington

the Macintosh for its advanced graphics, such as the NIH. Agencies that view the Mac as the de facto standard for deaktop publishing, such as the U.S. Environmental Protec-

tion Agency.

Sites where the Macintosh is the micro ting standard; such sites include aval Weapons Center in China Lake.

a variety of points — sometimes at the user level, sometimes from top-level cts and sometimes sneaking in the back door when government contractors

Skins says.

The U.S. Department of Energy in ashington, D.C., where Adkins is a peobleum supply specialist, bought 20 Macintoshes last year to produce a major re-port to President Reagan on energy

With the desktop publishing operation,

#### Mac evangelists are breaking down the

### barriers to Mac

#### benetration in the federal government.

the policy office could add graphics and make changes in the publication at virtu-ally the last minute, Adkins says. The DOE's decision to obtain the Ma-toshes was made by William F. Martin,

then deputy secretary of energy and a Mac enthusiast, Adkins recalls, illustrat-ing the fact that Macintoshes can penetrate government offices via senior-level

People's choice
An example of the bottom-up approach is
the NIH, where the Computer Research and Technology Division decided to offi-cially support the Macintosh as a workstation because of grass-roots user support, NIH's Powell says.

Powell is the leader of the Biomedical Research Macintosh Users Group (affec-tionately called "Beermug"), which has 300 users on its mailing list and 25 to 50 attendees at its meetings. "The success of the users group was cited by management as being a clear sign that the Mac was something that researchers wanted and needed," Powell says. The NIH now has roughly 500 Macintoshes, and that figure is likely to double next year, he

The other reason the NIH adopted the Mac as a standard platform, along with IBM micros, was that Apple demonstrat-ed its commitment to the government ed its commitment to the government market by opening a federal marketing and support office. "I'm certain that our division would not have elected to support the Macistosh if Apple hadn't made that move," Powell says.

Users say that Apple has made a lot of smart moves in its federal marketing ef-fort, but they feel the best was simply the

#### Before Apple entered some procurement

### contests, "everybody in the federal government

### thought Apple was a toy company."

C. LLOYD MAHAFFEY APPLE'S FEDERAL SYSTEMS GROUP

to aggressively enter the marapple reportedly hopes that the gov-nent market will become 10% of its ness. Mahaffey will not disclose the

ems Group's share of Apple's

business, but he discloses that the group has already submitted bids for govern-ment contracts that could potentially amount to \$1 billion in be

ext five years. One reason Apple can enter those bid-

ding contests is its commitment to mak-ing its technology comply with govern-ment atandards such as the Poics standard for software portability, the Government Open Systems Interconnect Profile for computer networking and the National Security Agency's computer se-

National Security Agency's computer security standards.
Moreover, the introduction of Apple's Units-flowed operating system, AUX, made it possible for Apple to bid for large the flower operation. "That's Units contracts at the U.S. Army affect why, inside Apple, the Federal Systems Group has taken the lead on our AUX strength of the Apple of

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# What to Expect from Apple-DEC Alliance

BY MICHAEL MILLIKIN ohn Sculley and Ken Ol-

nent Corp. alliance in Ja sarv. But what is emerging from miness is likely to be less ig than what was envied when the two powerful in-

ng on producing will be ex-mally unique to the VAXc union. This is, crestfall macinosa evangeasts assoe, the only sensible way to approach the marketplace at this point in time. DEC certainly would gain nothing by excluding the domi-nant IBM Personal Computer workstation platform from its work - or even by treating the PC as a second-class citizen.

Nor would Apple find its interests best served by single-

minded pursuit of a VAX connec-tion at the expense of tapping into IBM's Systems Application Architecture. However, both vendors gain from cooperation mainly by speeding the develop-Reaction to the relationship

Reaction to the relationship falls predictably along partiasan lines. Mac fanatics seem to regard the alliance as a giant thanns stuck into IBM's eye. The DEC-Apple alliance would sweep corporate desk tops clean of those pestilential PCs, for which neither DEC nor Apple has much affection.

DEC supporters, for their part, seem to view the Mac as the next most acceptable alternative on the desk top (following, of course, any DEC product).

deed, there is a great deal of potential synergy between the two unies because of the high penetration of Macintoshes into DEC ints. For both companies, however, the alliance is just one aspect of broader strategic plans.

For Apple, the alliance does bestow the Mac with increased legitimacy as a corporate machine. Not that the Mac had none; on the con-

Millikin is vice-president of the Seybold Office Computing Group in Boston



Results of VAX-Mac union are less exciting for both companies

than initial announcement

trary, Apple has been working very hard to increase its commu-nications and connectivity abilities. DEC is currently the largest major systems vendor substanmajor systems version substan-tively working to integrate the Mac into the larger information architecture. That proselytizing is good for Apple, but it is also

good for DEC.

The alliance improves DEC's story about personal computer integration. Back in January, the relationship with Apple seemed particularly special. Since then, however, DEC has also entered

a variety of standard w proposed in the Netv Phase V (Decnet/OSI).

The Apple view
The Mac initially had a difficult time g because of its limited networking and communications possibilities.

That condition is being corrected. Now, Apple says, the Mac should

be as acceptable a desk top solution for a corporation as is an IBM F
Apple's efforts in integration are far from DEC-centric, however.
Since the Apple-DEC announcement, Apple has acquired two n jor connectivity companies, Network Network Systems, Inc. Network Inn

for its CL/1 server and software that gives Macintoshes transparent access to DEC VMS databases through the imple-

entation of a client/server model.

Then, also early in June, Novell, Inc. Then, also early in June, Novell, Inc. announced its long-expected support of the Mac on Netware. The acquisition of the Mac on Netwark Innovations and CL/1 demonstrates that Apple isn't sitting around waiting for the joint development with DEC to answer connectivity questions. Apple in driving ahead solidly on its own. and CL/1 will be a major component in Ap-

and CLI will be a major component in Ap-ple 5 own connectivity palans. According to Apple's Sculley, Network. According to Apple's Sculley, Network. Immunitation word it focus solely on the Ap-ple-DBC environment. The IBM host en-vironment is targeted ment, and byte-riorment is targeted ment, and byte-pholoc CLI I told his to support DOS south that the propert DOS So the bottom line is that although Ap-ple may have superior connectivity fur-to the DBC convironment, either through its own efforts or as result of the cooper-

its own efforts or as a result of the cooperative agreement, Apple isn't relying on that one approach; IBM connectivity is

The DEC view
Identified areas of cooperation between
Apple and DEC include the following:

Mac access to VMS files.

Mac havelined annihilations running on Distributed applications running on

oth systems. Electronic-mail compatibility. Document interchange via Digita ument Interchange Format (DDIF).

Sharing of print resources.

· Joint specification of database stan-Network management tools.
 Electronic conferencing.

 Videotex. These areas are also encompassed in the acope of DEC's Network Application Support services, which means that what is available for the Macintosh will also be available for DOS, OS/2 and Unix work-

With Network Application Support, DEC intends to provide users in a mixed system environment of VMS, DEC's UIsystem environment of VMS, DEC's Ul-trix (Unix), Mac, DOS and OS/2 with the

ability to have transparent, dynamic inte-gration of information scattered across Network Application Support has three primary-components: Application Access Services, Business Communica-tions Services and Information/Resource

uring Services.
Under Application Access Services, DEC currently offers terminal emulation

DEC currently offers terminal emulation (with a promise to move to Decwindows-based distributed code and a piece of All-lin-1 running on the Mac). Business Communications Services is a big area for DEC, with solutions prom-ised for electronic data interchange (ANSI X.12), E-mail (DEC'a Mailben).

electronic conferencing and videotex.
Information/Resource Sharing Services provide support for a compound document environment as well as docu-ment interchange through DEC's DDIF,

publishing services, network printing, file sharing and database access. Put the two sets of features — those in Network Application Support and those in the DEC-Apple alliance — together, and you'll see that they map exactly. In other words, the fruit of this union is not going to be radically different than what will be available for other platforms.

#### Apple isn't relying on the DEC approach; IBM connectivity is just as important.

Mac-to-VAX integration might not eventually be unique in terms of the func-tionality it delivers, but those products certainly could be out on the marinet first. All vendors are recognizing that the com-ing architectures will be networked and distributed; for example, applications will be split between host servers and work stations. There is an agonizing amount of development work that has to be done to make this happen, particularly since the ekstation environment will by and

large consist of standardized platforms. That means development efforts across

multiple platforms.

For all the milesge DEC squeezed out of its "one company, one architecture" appeal, that approach soon will be relatively meaningless. DEC may have a uniform host/scaver systems platform, but it certainly is not going to have a solitary modelativily natiform. workstation platform.

Network Application Support is DEC'a concession to market reality. The combinations that provide advanced solutions will be the combinations that win bids, it thus becomes in the vendors' best inter-ests to cooperate as best they can to

sets to cooperate as best turn speed the development process. For example, with its proposed DDIF, DEC is going to have a powerful marketing weapon. DDIF will eventually be able to become the foundation for compound to become the foundation for compound documents spread across no enwork con-sisting of multiple operating system plat-forms. In order to tout this, however, DEC needs the other platforms to support DDIF. Thus, one of the major efforts between Apple and DEC will be to provide Mac support for DDIF. Again, for both vendors, the result is an attractive one. The issue of the alliance is not one of ex-

ivity - it is one of timing.

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# COZYING UP TO DIRECT SALES

Apple and its dealer network face unexpected challenges

#### BY BARBARA SEHR

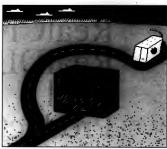
manufacturers devote as summy resources to the dealer resources to the dealer resources to the dealer retwork as does Apple. Long before IBM Personal Computer Cooses begon their battle for shell space and the hearts and pocketooks of consumers, Apple had established a large network of dealers that sold its popular Apple II exclusively. That network is still very much in place, selling Apple's Macintosh product line.

its dealer network face a challenge that is fraught with conflict. The present-generation Macintosh has been targeted at corporate users who demand aid and comfort of a different sort.

Large corporate accounts want hand-holding and tender loving care that often can only be accomplished through direct sakes. Selling into MIS departments in the Fortune 1,000 can be done through a dealer or a value added reseller. But in competing with IBM, which perfected the art form of direct sakes, Apple finds itself trying to sit at two weddings with one decriner.

Sensing a growing corporate demand for the Macintosh, Apple established its National Accounts Program in 1984 to offer "a direct interface" between the manufacturer and its largest corporate customers. Within a year,

Selar is a free-lance writer based in Seattle.



the National Accounts Progr grew to 200 customers. Michael Coleman, coord tor of technical research and

velopment at Aluminum Company of America (Alcoa) in Pittsburgh, says his company, with Macintoshes representing 25% of its PCs, works directly with Apple for sales, system delivery and support. "There are times when we deal with a local computer store," Coleman says, "but that is the exception rather

than the rule."
Apple's dealers, however,
were none too pleased with this
turnabout. They wanted to know
if this signaled a dramatic change
in Apple's philosophy; that the
company would now compete directly with them. The company

Instead of expanding the National Accounts Program, the company attempted to combine the best of both worlds by re-

cently establishing the Account Manager Program, according to George Everhart, director of business marketing at Apple. Some 200, other corporate

user sites have opted for the Account Manager Program, in which systems are delivered through a third party. The Apple account manager is responsible for setting up the sale and acts as a lission between the customer and local dealer. The product itself is then delivered through either a local dealer or a value-add-

A major advantage of the program is the direct link it provides to Apple's future plans. To corporate users planning future system acquisitions, this is a key eleroent of the arrangement, at least as important as the volume

Advance information als means Apple Account Manage Program participants serve a beta-test sites, a function not typically provided to small users, who may buy their systems through the same dealer.

There is no financial advantage for a customer to choose between the Account Manager Program or the National Accounts Program, Everhart says. The National Accounts Program still enists; some accounts re-

main relactant to do business of any sort with a dealer. However, only some 75 sccounts remain in that program, according to Everhart, and he says he does not expect the numher to expand. In fact, he says, some of those customers have requested participation in the Account Manager Program especially those corporate cusespecially those corporate cus-

tomers with locations in remote tress. "They are discovering that the needs of the local plant can be better served through a local dealer." Eventuations



After proving radio waves could travel short distances. Marconi wondered. "What if..."

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BY ALAN RADDING

be IBM mid-range mat

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Radding is a Boston-based author spe-

Welcome for New Arrival Developers toast IBM's openness and the AS/400's ecumenical interface. Page 46.

platform for the developmen osophisticated management formation systems. "They wanted an exist package. They didn't want a velopment platform," says F

INSIDE : Ask the

> ors answer questions creating 401K reports, ng old data and more.

Conte, senior technical editor o "News/3X-400," a Loveland Colo.-based newsletter.

Overcoming obstacles
While simplicity was a benefit
users, it proved to be a hindrar

dered by the machines' inability to provide the power necessary to run sophisticated applications, shied away from writing for this small, diverse group of users. This vacuum created a fertile ground for the development of an insular culture of small-scale software developers, many of whom were sintially contracted to develop custom software and to develop custom software and

#### **ASK THE VENDOR**

The following questions were solicited from users and conveyed to the vendors for responses.



ws us to run it on i System/38. Will a n in RPG-III be re-NEW GENERATION SOFT-WARE, INC.: Within the Generd Carpet, In al Ledger and Accounts Payable le Ale

LOGIC INTERNATIONAL INC.: We are planning to rele RPG-III versions of our app

ixes are d eir paychecks b w up on ou Pam Cobb

Excel Industries, Inc.

BANCROFT COMPUTER SYS TEMS, INC.: In the employee master file maintenance screen D, for total number of exemptions to claim for state taxes, en-ter 99. This will instruct the system to not deduct taxes from the paycheck box will list the wages on your quarterly tax revenue.

fe have been runnin low Generation Sof

Users EDOM PACE 42

using a built-in menu-based facil-

ed to create a report at r's end to show the to-implayee 401K deduc-s by month, but our

ns by month, but or vroll totals are rolls

rery quarter. How can I fore data in Michaels, oss & Cole's mrc-Query eries so that this report

Coca-Cola Bottling Company of Chicago

MICHAELS, ROSS & COLE

LTD.: Generate a summary file with the mrc-Query series that will store each month's 401K de-

ductions for each employee.

Then take the generated code

This would

entire year and enable you to re-

port contributions to date a

Marie Maty

Niles, Ill

commercial packages.

Things first changed when the System/38 came along. That ne, introduced in 1978. sported a faster, more advanced architecture, a 64-bit address e of the old and object-oriented program stributions? Leo Dombchewsky ming. It attracted some new Mrs. Paul's Kitchens buyers who were slightly more prosperous and considerable Philadelphia more adventurous than the typ cal owner of either the nowcontinued System/34 or vastly popular System/36. systems, you can purge posted journals and distribution history If the System/38 shifted the

software landscape for develop ers and users, the Application System/400 has major seismic potential. IBM mid-range users were catapulted into prominence with the June announce-ment of the AS/400. These users now have a product that is at the forefront of IBM's development strategy and the center of much interest from a wider range of software providers,

Upbeat reaponses Users' initial reactions to the AS/400 are mostly positive. They express little fear that their systems - hardware and software - will be left une ported as a result of the new

product line. Theodore Schatzberg, presi-dent of New York-based clothing manufacturer After Five, regards the AS/400 both as a means for adding new applica-tions and as an investment hedge

with some customization. against the future. make it part of your period-close After Five, a leading manufacturer of women's evening clothen, is a System/36 shop. It onthly 401K deposits for the is also fairly representative of the manufacturing industry, the

largest grouping of IBM mid range installations. range installations. With six terminals, the monny isn't apthe System/36, but the introduction of the AS/400 has led Schatzberg to consider an upde. He remembers he lesson in economics

he received when the System/36 came and the company's System/34 lost its value ready to jump to the AS/400. Long frustrated with the alow-ness of the System/36, Baden The 36 will still have so ue," he says, "but if we have a decent season, I might dump it

Eleven years ago, the compo-ny purchased a System/34; in 1985, it upgraded to the Sys-tem/36 it currently uses. Like most small IBM mid-range inmost small IBM mid-range in-stallations, the System/36 at After Five is used for administra

tive and financial DP operati When he is not busy as presi dent, Schatzberg is also the com pany's DP manager. With the System/36, how ver, there o lit tle to manage. Except for the computer operators, After Five

fessional computer expertise. The appeal of the System/36 is its ease of use. "Everything is menu-driven and simple to learn." Schatzberg explains.

A pioneer in the IBM mid-range market, After Five devel-oped its own administrative ap by contract programmers. ofications with the help of a ultant, primarily becau appropriate commercial pack-ages weren't widely available. Over the years, After Five re-turned to the same consulting any for enhancements such as work-in-progress, inventory control and materials afquire-ment planning applications. As appened in simi

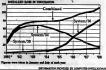
ne, half of which are used for order entry.

Baden uses the computer pri-marily for order entry, accounts

vables, invoicing and inventory control. The applications for these tasks were developed

Baden also unsuccessfully shopped for commercial applica-tions. "I looked at commercial packages but didn't like them. They had too many things I didn't want," he explains. He says he feels his applications "are much simpler and they do what I want to do, the way I want to do it. Even with the applications

Favored system status Although the System/36 has made strong gains at the beginning of this year, the System/36 or ounters of the intelled base for IBM) mile ra INSTALLED BASE IN THOUSANDS



rg is, for ex

York-based

s a list of improvements, such

has a last of improvements, such as the addition of communica-tions capabilities, that he wants to make to his applications. Baden Manufacturing, a wholesale office supply compa-ny, uses its System/36 for daily

the machine because it doesn't require constant professional at-

ntion. Six years ago, the com-ny, which has 50 employees

n/34 to a 36 F are attached to the

os and was attracted to

Bader

the consultants now sell a ver-

work he has done over the year sion of the system they devel-oped for After Five as a turnkey aden still isn't completely satis-ed with the system, "It's not that complete. There are a lot of holes. There are many more things we wanted to do, but the finished solutions than partici-pate in development. Writing custom software applications is ine is slow as it is, so I stopped putting on applicanot, he says, the most effective ns," he explains. But the wholesale office sup-

keeping a watchful ply industry is very competitive and highly computerized. In re eye on the latest ofto his competition's use ferings in general ledger software. "I don't like any of the general ledger pockof what he describes as very so-phisticated systems, Baden is upgrading some of his applica-tions. 'I'm having a programmer come back ages I've seen so far," he says, "but me back and start far," he says, "but eventually we'll find again. We're going to add new features, like on-line order en-

try," he says. In the process of managing his System/36, Baden became a self-taught computer authority. He has been frustrated by what he says is the lack of technical detail being made available about the AS/400. "I was concerned about RPG," he says. "[IBM was] saying that RPG is not in-cluded under SAA, so I was wor-

ried that RPG wouldn't he sup-ported. But now I see that RPG e a major language on the AS/400." Because RPG is avail-able on the AS/400, Baden is confident he will be able to move his current software over to th

Curlous, but not committed Like most IBM mid-range users, Marc Spencer, manager of sys-

#### RAL LEDGER, ACCOUNTS PAYABLE. CHASING, PAYROLL, PIXED ASSETS

IBM SYSTEM/34 APPLICATION SYSTEMIACO

Proven software from a proven software company. Thousands of companies 1 BM mincomputers. Screen design coding and documentation continue to our piece inquisity standard. Sub-ledger user-defined · PIOs match receipt and

GL number moretra five muti-company processing Query PrO status
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· Reconctation reports to Cit . Single- or multi-period · Standard vouchers processing • Short year handing . Canamired vendor budgers Intercompany payments

· Multiple check formers

#### Para Research

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Knott's Berry Farm in Buens Park, Calif., has been following the AS/400 develop-ments. The company has not yet reached the limits of its System/38, so upgrading inn't a pressing issue. "We've talked about it, but we're not doing anything

yet," he says.

K'nott'a Berry Farm is a sprawling
Amusement park rivaling its neighbor Disneyland. While the company is not a conventional retail establishment, it is typical
of a sophisticated System/38 shop. The yet," he says. of a sophisticated System/38 shop. The business is an entertainment enterprise encompassing a restaurant and food ser-vice operation and a retail operation along with ticket sales. To run its assorted en-terprises, Knott's uses a System/38 with a mix of software developed by in-house

and contract programmers and acqui The decision to add commercial pack-

ages was the result of acquiring the Sys-tem/38. Knott's bought the machine in 18M Sys-tem/3. For three

years, the company ran both systems. "We didn't want

to convert the code," Spencer ex-plains. "Finally, we ended up doing a ive conver-

massive conver-sion." Because of the difficulty of that conversion, Spencer says, the com-pany began searching for commercial products, which are generally better doc-umented and which a vendor will often

umented and which a vendor will other cuttomize to the conversion. Knott's uses commercial packages mindy for financial applications. The company uses the J. D. Edwards & Co. so-counting package, including general ledger and accounts payable. Spencer is also considering buying a package to generate and track season passes for the park from any of several

The company might have shopped for

The company might have shopped for a commercial retail package except that, in effect, it already had one in the food service program it developed in-house.
"The food service programs were the first things we put on the 38. The retail programs were simply a clone of that," with minimal changes required, Sp

wan manma changes required, Spencer explains.
"Some of the applications we have developed, like our work order program, outshine anything on the market," Spencer says. But as the organization contemplates switching to point-of-aist terminals instead of local cash registers, Spencer assessed of rocar can registers, operace asys it will move toward purchasing a commercial product. "Twe looked at too many point-of-sale programs. I won't write one. There are enough out there that can do the job," he says.

Now that the company has all its appli-cations running off the System/38, Spen-cer says he doesn't anticipate any prob-lem moving to the AS/400 platform.

All grown up at Bellin Memorial Hospital in Green Bay, Wis., the AS/400 announcement re-ieved some of the pressure of planning for the future.

According to Jim Wildenberg, assists vice-president of hospital information a tems, system use there has been evolvi toward a full management info

OME OF THE applications we have developed, like our work order program, outshine anything on the market."

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MARC SPENCER KNOTT'S BERRY FARM

tong-term strategy, he explains, was a has the capacity to meet our tonds for a create to patient chart information.

That projected relays word regular 2000 and a new consultation terminals and post the housted to the consultation terminals and post the housted because the consultation of the consultation terminals and post the housted to the consultation to the consultation of the consultation to the consultation of the consultation to the consultation to the consultation of the consultation to the consultation of the consultation to the consultation of the

tal currently maintains two System/36s — with one used exclusively for testing and program development — and one System/36, used mostly for shared word processing. The hospital is automating its line services in a system built around the

m/38 Much of the hospital's software deve ment has been handled in-house. Ge

opment has been handled in-house. Lese-eral hospital imanagement applications were developed internative. And some appositioned clinical and lab-oratory applications were created by a contract programmer. Bellin Memory applications of the rought of the program developed and soil by another hospital. It also turned to a commercial aupplier, Price Waterhouse, for a Continued on page 52

bring Chipcom's commitment quellence to the fiber optic user our new ORnet" active star ORnet is the only family couplets and transcrivers that 10 Mbps performance, standan glance. And like all Chipcom is fully little compatible. were fully committed to connectivity and performance. medium it's running on.

## Developers board AS/400 bandwagon

They say all things come to those who wait, and for IBM's System/36 and 38 software developers, the proof of that expression seems to lie in the Application

The AS/400 "provides a level of com-patibility that the industry has been look-ing for," says Mark Wasilto, senior vice-

of is editor of Midrange, a trade publication for the IBM System/36 and 38 and Application Syspresident of marketing in the applications products division at Computer Associates ternational, Inc.

Wastlko is not alone in his reaction ny software developers are applauding the new machine and rushing to provide support in the form of new packages. Some have already converted existing software to the AS/400 environment. Others say they will convert gradually, taking aim when the first wave of ma-chines begin shipping. All seem to concur

in the belief that customers will accept the AS/400.

AS/400.

One major reason for this enthusiasm is the openness IBM exhibited during the AS/400's development cycle.

The new openness
"I'd call it IBM's version of glasnost, says Jack Gable, vice-president of tech-nology at software vendor American Soft-ware, Inc. "The world appreciates being

Gable points out that IBM's willing is to bring software developers into AS/400's research and development pro-cess stands in stark contrast with its han-dling of other IBM mid-range and largescale machines. In the past, be says. nent work has taken place beh closed doors, frustrating developers and

users Base.

With the AS/400, IBM opened its doors to both groups. The company's Rochester, Minn., laboratory, where the AS/400 was developed, held a "Migration Invitational," inviting broad-based advisory panels of develor sory panels of developers and users to ac-tively participate in the machine's development. The program, which took place early in the development cycle, was de-signed to give third-party software pro-viders a sense that their input was wel-

The beauty of AS/400 for developers is that IBM has taken the System/38 and wrapped it in a separate user interface similar to the System/36. Therefore, as

HE AS/400 "provides a level of compatibility that the industry has been looking for.

MARK WASH KO COMPUTER ASSOCIATES INTERNATIONAL, INC.

newer technologies become available, the interface can be replaced with little or n impact on existing users. If a graphical "Mac-like" user interface is provided, as System Software Associates, Inc.'s Rog-er Covey suggests, that interface can be added to the system without affecting ex-

Covey says he expects the OS/400, the AS/400's operating system, to be en-hanced with windows and pull-down menus later this year. About a year after that, he estimates, easy-to-use software packages with true what-you-see-iswhat-you-get interfaces will start to ap

Right now, most developers are con-tent that the interface allows them to con-currently support System/36 applications while also allowing those applications to execute in an AS/400 environment. Current System/36 and 38 users will be able to use the interface to simulate their sys tems while slowly migrating to the AS/400 environment through directly mapped functions.
There are no em

AS/400. Instead, each System/36 or 38 function directly maps to an AS/400 func-tion. For example, the System/36 \$SFGR display interface is vastly different from the AS/400 interface, but rather than using a slow-running interpreter/emulator, the AS/400 converts the \$SFGR source code to the equivalent AS/400 display source. The resulting source code is com-piled as AS/400 (native) source.

To the System/36 application develop-however, the \$SFGR source is syntax To the System on apparament erronger, however, the SSFGR source is syntax checked and diagnosed with the same messages produced by the System/36. This approach provides System/36 users with the same performance as native AS/400 users. Another reason the interface, a seemingly small line item in the AS/400's list of features, may turn out to be a sleeping giant is its potential Continued on page 52



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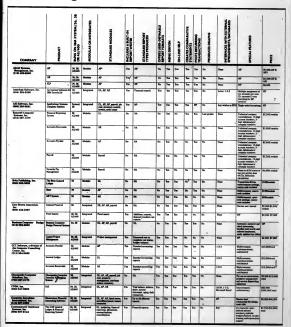
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# Accounting software



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The companies included in this chart responded to a recent telephone survey conducted by Computerworld. When a vendor is unable to provide specific information about its product, this is designated NP (not provided). When a question does not apply to a vendor's product, this is designated NA (not applicable). Further product information is available from the vendors.

COMPANY	MOBUCI	RUNS ON IBM SYSTEM/36, 38 OR A5/400	MODULAR OR INTEGRATED	STANDARD MODULES	INCLUDES A BUILT-IN REPORT WRITTER	STANDARD RIPORT TYPES PRODUCED	OFFERS USER DEPRABLE REPORT FORMATS	MENU DRIVEN	он-писная -	CREATES COMPARATIVE STATEMENTS	POSTS RECURBING TRANSACTIONS	PRODUCTS GRAPHS	INTERNACIS WITH EXTERNAL SPELADSHIETS/DATABASES	SPECIAL PLATURES	BIR
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ost users it represents a giant

er industry development.

Welcomes applications Despite the advanced techno-

put into the AS/400, System/36 and 38 users' primary interest in

## Users

FROM PAGE 45

marketing/financial analysis pro-gram built around the govern-ment reimbursement codes for fingnostic-related groups, a ma-low feature of third-party reimrement for hospitals. In addition to hospital ma

m source to hospital man-agement, the production-mode System/38 in used for clinical ap-plications such as pharmacy, or-der entry, in-house laboratory and surgery and nurse schedul-

Modern methods WWOR-TV in Secaucus, N.J., is typical of the newer IBM mid-range uners. While early users of IBM's mid-range machines often

wrote their own software be-cause they couldn't find appro-priste commercial packages. WWOR relies strictly on off-theshelf applications.

Under its previous owner

WWOR's data processing was handled by its parent company's DP department. Under its new owner, MCA Broadcasting, Inc., WWOR suddenly had to handle its own data processing on a Sys-tem/38, according to George Grippo, the station's manager of information systems.

information systems.

To get running quickly, the station purchased several commercial software packages, including payroll, general ledger, accounts payable and financial reporting. Next year, the station intends to add a purchasing system.

wwoR and Grippo prefer commercial packages. "I'm com-fortable with RPG, but we do very little programming," says

Grippo, a television industry professional with PC expertise and some familiarity with the System/36.

Grippo may modify some re-ports but leaves everything else intact. He has found the commercial products to be extreme-ly easy to master. "I put up all the software myself, so that

ows you how hard it is,"

Grippo quips.

WWOR is slated to become the hub of a group of television

Money matters Accounting packages led the way in a survey of software use at 18,000 Switzm/34, 36 and 38 sizes



CA CRN

When that happens, Grippo ex-pects the station's DP department to expand to serve its sister stations. At that time, WWOR will look closely at the AS/400. He says be expects no problem transferring his applica-

IBM is presenting the AS/400 as the natural evolution of the System/36 and 38, but for

that the AS/400 easily accepts their existing applications. De-velopers may be eager to take advantage of the AS/400's extra ons being acquired by MCA. features, but to System/36 and 38 users, who represent the primary market for the new ma-chine, those advanced features would hold no attraction if using them meant writing off the large body of existing System/36 and 38 applications.

## AS/400 leap in computer sophistication. As a leading element in IBM's grand Systems Application Architecture design, the new ma-FROM PAGE 46

shility to clone other systems. Right now, IBM is only using the interface to clone its System/36 chine puts the AS/400 user in the forefront of a major comput-

and 38 enviro

and 38 environments.

However, if IBM could manage to simulate those environments, there may be little to keep it from simulating Digital Equipment Corp., Hewlett-Packard Co. and Honeywell Bull, logical innovation that IBM has

Inc. environments.

The broad range of processor sizes offered by the AS(400 is also important to software developers. According to American Software'a Gable, this range "makes for a much simpler business decision and strengthens an ness decision and streng area that has been weak for IBM and strong for DEC:"

Productivity is bonus Another attraction for develop-

Another attraction for develop-ers in the programming productivity that the ASA400 offers. The System(38) has been her-added to being a productive pro-tible of the productive pro-spiration of the productive pro-spiration of the productive than the System(38). The ASA400 provides the ability to extend the use of the program resident the use of the program resident the use of the program resolu-tion monitor (PRM).

ton monitor (PRM).

The PRM, the only real compiler on the AS/400, supports the Machine Interface (MI) inguinge, an AS/400 version of assembler more similar to PL/I

allows compiler developers to build their compilers without the need to know the underlying ma-chine. For example, the MOVE operation in RPG, Cobol and oth-er languages will map to the same MI instruction.

This commonality me the AS/400 will, of all IBM mathe AS/400 will, of all IBM ma-chines, most likely be the most prolific in programming lan-guages. RPG, the traditional lan-guage of choice for System/34, 36 and 38 users, will probably remain the language of choice for the AS/400 for now. Howerer, the current release also sup-ports Cobol 74 and 85, RPG-II and III, RPG/400, Pascal, SQL, Control Language, OCL, Basic

Move from mainfromes System/36 and 38 software de velopers are not the only poten-tial suppliers for the newly ex-panded IBM mid-range market. The availability of Cobol 85 will permit the porting of traditional mainframe-only applications to the AS/400. This will also provide smaller companies with

more software power.

Whether the mainframe software vendors will leap at the opportunity is debatable. None of their few forays into this market have been notably successful, but System Software's Covey tains that these vendors will have no choice but to move ag-

gressively to support the AS/400. "Within one year, it will be obvious to even the most die-hard mainframe advocates that their companies cannot continue to prosper without a significant presence in the AS/400 mar-

# IN DEPTH

# The dynamics of prototyping

Erron the side of over-management and you have a high-leverage tool at your disposal

BY MARK TEAGAN and LIZ YOUNG

rototyping is not a dirty word. Yet negative stereotypes, uarealistic ectations and fears losing project control have given it a bad

Even those who say they understand it of ten underuse or misuse prototyping. With no clear requirements definition, the pro-ject's real objective eventually gets lost. This lack of discipline results in an expensive and tedious prototyping process in which the prototype itself be-

comes the goal.

But prototyping can be a via-ble productivity tool when man-

From start to finish Prototyping should be treated as a discrete activity with a defined beginning and end. Further, each phase within an application development effort can be han-

It doesn't matter how many phases there are or what they are called. It matters only that the software developers and end users agree — up frost — what the phases are, when each will begin and end and what delivers-bles will be produced. Whether it is part of the conventional system development life cycle or an entirely different life cycle, pro-totyping should be considered a

 Estimate time and costs. Develop a detailed estimate of each phase of the development pro-cess before undertaking that phase. Do not estimate what you do not know; explicitly address roject. Keane, Inc.'s Productivity do not know, explicitly accessed all assumptions.

• Use the 80-hour rule to break the job down into tasks that require so more than 80 hours to complete. Ensure that each task results in a tangible product.

• Establish a formal procedure

Kenne, Inc., a no rane, Inc., a national application soft-are company headquartered in Bosis project mana

ment approach and the subject of the book, Productivity Menagement in the Development of Computer Applications, Prentice-Hall, 1985.

Under Productivity Manage-ment, users can apply the following six principles to projects, in both individual development phases and for the entire devel-opment effort:

Define the job in detail — both in terms of what work must be

Include the appropriate users, particularly during planning. • Estimate time and costs. De-velop a detailed estimate of each

criteria so that acceptance is a gradual process rather than a

Define the job in detail People in the field agree that prototyping is imappropriate for batch applications and those that are highly algorithmic. They dis-agree, especially regarding low-structure applications, about

application and using the conventional systems developmes cycle on the rest.

Defining the job in detail

mesns agreeing on which one of two basic kinds of prototypes will be built:

• Throwaways help project developers define sys-tems requirements. These usu-

from the con must also concur on when the prototype phase will end, how it will integrate into the next phase of the systems development life cycle and precisely what level of detail will be delivered.

That is, they must "bound" it. And to ensure that prototyp ing doesn't get out of control, se-ers and developers should also agree on when walk-throughs will occur and on the number of

iterations to be delivered.

If the prototype is to be one
that will either evolve into the final system or become part of it,
you must agree on what development methodology you will use
and ensure that both users and
developers understand what is to
be delivered at the end of each

phase.

Prototyping a job in detail goes a long way toward allaying user concerns. Take, for example, the systems implementation plans of a large Eastern bank. A new system was to replace one whose subsystem generated 85 different reports.

Because this output repre-sented a security blanket to its users, they wanted all 85 reports incorporated into the new



ake good prototyping candi-• Get the right people involved.

The answer is: It depends. It depends on things like the status of your database and the devel-opment tools you have available. If, for example, you are develop-ing a low-structure application like an ad hoc inquiry system and

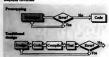
ing a low-structure apparatum like an ad hoc inquiry system and you have no database in place, prototyping is probably inappro-priate since developing a usable database will constitute a good on of the effort. If, however, you have a good database in place, prototyping may be the best way to deter-

ne enduser access There is, of course, no rule against prototyping part of an

· Fears of losing project control

· How to get end users committed enough

· The 80-hour rule



n-years to do so. The analysts estimated that sey could cut this effort in half ng a relational database man ment system with an on-line ry facility and still provide us-

## ed in the 85 reports. The us-

dress users' fears. Relaal databases were loaded, ac-queries were handled on the otype system and users got

t their information needs Perhaps the most important pect of getting the right people rolved is gaining the visible pport of a key management

Needing to be well versed in office politics, this manager must understand whose jobs will be affected — and how — by new system implementation. The manager must have the authority to make the necessary decisions and the influence to reso

user differences that invariably If such issues are resolved, prototyping can be a highly ef-fective tool for involving the users, far superior to the use of

The system developers and users can function as a team to

treet can innote as a common create the best possible system. This kind of give-and-take be-tween knowledgeable develop-ers and involved users ensures realistic expectations from both

Given the stereotype that prototyping involves little more than playing with screen formats, it is easy to underestin the time users must devote to

Users' involvement in the early stages will be frequent, and they will have to make deci on which further iterations are

To avoid long turnaround mes and the unavailability of decision makers, system devel opers must evaluate users on their inclination and ability to participate in an intensive pro-cess. Developers need to im-

For example, at a large manu-facturer, a development team used prototyping to raise user expectations. The users had be-come convinced, after several failed attempts, that a multifaci-lity labor scheduling system could not be automated because of many seemingly conflicting

A user team was composed of members from key areas in the company and charged with de-veloping screen layouts that would meet the needs of all the firm's plants and operational ar-

Using a screen generator/ code generator tool, the team, with the guidance of the developers, discovered that the compa-

tire project can be refined and Because prototyping is con

paratively new, it can be difficult to define and estimate as a first phase. It is best to agree to a quick "broad" prototype that quick "broad" prototype that then becomes a baseline against which an estimate for the first phase can then be made. This is in perfect keeping with the no-tion that prototyping works best

COMMON FEAR about prototyping is that it too easily becomes a license to violate standards. Addressing assumptions in writing provides a mechanism for

preventing this problem.

the result was shown to end us-ers at the plants, they too be-

Estimate time and costs As each phase is completed, enough knowledge about the next phase becomes available

Since each of these tasks can ite, the entire next phase

oped quickly and then updated frequently.

Prototyping does not elimi-nate the need to evaluate the un-certainties and intangibles that occur in any project environ

As long as this uncertainty is explicitly addressed, proto-typing will normally be a more effective tool than the alternative in reducing the uncertainty in controllable segments. But risk factors such as large project size, complexity of the

# **ACCEPTABLE**

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drives appear as RA drives to the host. It's multiple gigabytes of storage in space-saving packaging.

technology and the application, volatility of requirements and so forth can be reduced by explicitly

There are two types of as-nptions: process assumptions who is to do what, when and with what resources — and product assumptions — what is to be delivered and what is not to

be delivered.

While one goal of prototyping is to minimize the amount of painvolved, assumptions ruld be in writing and signed When the assumptions are not in writing, the project man-ager often finds it difficult to conager often must it current to con-vince management that a prob-lem, such as longer than expected turnaround times, has to be corrected or that an adjustment needs to be made to the er-

A common fear about prototyping is that it too easily be-comes a license to violate stan-dards. Addressing assumptions in writing provides a mechanism for preventing this problem.

Use the 80-hour rule hile many tasks will take fewer an 80 hours to complete, it is critical that none take more. At no time should more than 80 hours pass without work being

This approach, along with explicitly addressing all assum tions, helps redress the realist fears that many project mana ers have about prototyping

tting out of control.
The 80-hour rule provides the project manager an overview of the magnitude of the proto-typing effort. It is used not only in scheduling and estimating but also in assigning work, tracking progress and facilitating user

communications.

By imposing many and frequent deadlines from the very beginning, project drifting can be avoided. Finally, effective use of the 80-hour rule virtually guarantees that the other principles of Productivity Management are

Changing procedure While accommodating change is part of prototyping's strength, it fear, often legitimate, can be ad-dressed by controlling change during the implementation of

prototyped projects, just as it is during the system development all cycle.

All change requests should be submitted in writing. Each should then be evaluated by a designated person who conducts a cost/benefit analysis.

ROTOTYPING remains underused because of concerns about controlling it, and these concerns arise largely because it has often not been managed.

Because analysis itself can be expensive, its costs should be al-located to a change budget that is agreed to and established be-fore the project starts. No

change is imple mented unless it The spirit of such change con-trol should also be observed dur-ing prototyping. If, for example, mg prototypmg. II, no example, the end user wants to after the number of iterations, and this number was previously agreed on, then the changes should be submitted and approved in writ-ing. Their costs should be allo-cated in a way explicitly defined up front, perhaps in the written assumptions mentioned previ-

acceptance criteria established before cod-

ing begins. This has often been difficult with

posed system.

This not only enabled end users to visualize the flow and dynamics of the transactions to also provided a vehicle for developing acceptance criteria.

In fact, screen prints, filled out with user-provided data, became a deliverable product of the prototyping plase and a major input for the unit test phase.

ents and design documents. Prototyping does much to

remedy this problem. By seeing screen layouts, system flow and

file structures at the start, users the structures at the start, users can more reacily visualize what they will get.

Since each phase is also a pro-ject, Productivity Management advocates that acceptance crite-ria be established for each phase before it is undertaken. This is recent difficial for

most difficult for requirements definition, whether prototyped definition, whether procuspou or done conventionally. Again, build a quick "broad" prototype that becomes the baseline against which the achedules and estimates men-tioned earlier can be developed.

It also serves as the yardstick by

ers establish system acceptance

For example, at a Fortune 500 manufacturing company, us-ers found it so difficult to formu-late acceptance criteria that they

tried to get the system analy

criteria

lying a formal project man-ment approach to prototyping may appear to defeat the pur-pose of this underused productivity tool. But prototypand these concerns arise largely because it has often not been

Particularly for project teams using prototyping the first time, it is best to err on the side of

in solution, strong manage-ment need not be incompatible with the unstructured, give-and-take nature of the prototyping sessions between users and sys-tem developers. The role of proj-ect management is simply to astive process. •

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# MANAGEMENT



## Let's get together, now

gration is one of bout offering "solutions" — a erm that will not be used for

e remainder of this article -MIS managers cast new roles for

ore and more MIS m ers are stepping back to get a broader view of their compa-nies' information needs. Very ofn, what they see is a need to together a variety of system t just in the physical sense rough networks but in an orgaional way with an eye on

n to person and department It is clear that MIS execu-It is clear that MIS execu-ex recognize the value of a uni-d information management d systems approach — be it a stralized or decentralized rategy. Ask MIS managers ut their greatest concerns they will usually cite chai-res such as multiplatform

Of course, they also cite the problem of doing more work with tight budgets, but that is a challenge faced by every type of

smager.

The spirit is willing, as illusted by MIS managers' oriention toward integration, but mething is missing. That mething may be the technology, or at least the computer codors' reluctance to use their logy to best serve their Continued on page 60

## Study: Crash hangover keeps turnover low

BY JAMES CONNOLLY

NEW YORK - The turnover NEW YORK — The turnover rate for MIS staff has dropped to a five-year low, in part because of prospective job hunters being wary of leaving the security of their current jobs during eco-

rvey results released last Survey resurts recessed test week by compensation specialist. Edward Perlin Associates, Inc. showed that average annual pro-fessional staff turnover this year is down to 14.5% from 17% in 1987. Perlin officials drew a relationship between the turnover and economic problems ning from the Oct. 19 stock

. One of the reasons we saw turnover slowing down a bit may be what happened in October. People may be reluctant to leave their in a second or their in the second or the secon their jobs at this point," Perlin staff member Peter Tamblyo

work with fewer people. He said professional MIS staffs now av-erage 600 people, compared with 650 a year ago, and be translated that reduction to as-nual savings of \$2 million for

"Staff reductions were achieved primarily through attrition and hiring freezes. We know of very few instances of outright layoffs and firings, but we do know that

Perlin, which surveyed 47 New York-area companies, found demand slowing for MIS staff but strong for telecom-

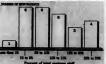
munications specialists.

The researchers cited average base pay increases of 14% for telecommunications specialists and 6.1% for other MIS per-

Starting pay for entry-le

## **Data View**

Leased employee levels vary a account for up to 25% of total MIS a 25 Fortune 100 companies personal



# Melting pot MIS

BY STANLEY GIBSON

These are perhaps the best words to describe Emhart Corp And the adjectives apply equally well to the global conglomer

care what the data is."
The variety of merchandise turned out by Emhart's some 150 units might best be described as everything you might use in the course of a day but probably overlook. It includes planshing fixtures, golf club shafts, give, door locks and shoe

PROFILE

David Dandro



# Apollo taken closer to divestiture

goes another MIS project ng off into the outside corste world, although nobody uid be surprised by this one. should be surprised by this one.

UAL Corp., parent company of

United Airlines, moved a step

closer to divesting its Apollo

reservation business recently

when the U.S. Department of portation

UAL sain it expects the sale of 50% of its Apollo interest to five other sartines for \$500 million to close soon. Under the deal an nounced in May (CW, May 9), UAL's Covis Corp. subsidiary will own 50% of Apollo, while Alizalia Airlines, British Airways,

Maybe there's another Roger Rabbit out there. Animation jumped into the public view this

The NCGA also announced its elected officers for 1968 and 1989, with consultant Carl Ma-chover of Machover Asso-

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**IBM**. The Bigger Picture

# Melting pot CONTINUED FROM PAGE 57

etting a good bang for a buck important consideration. 

Embart's only IBM mainfrance is a 964 Model Q, running MVS at the cor-orate data center in McLean, Va. The ainframe handles corporate record-

keeping but also serves as a time-sharing host for outside clients. The computers that support Emhart's

Hartford corporate headquarters typify the firm's attitude toward information crease productivity but not more than is needed. The offices are served by a clus-ter of three DEC VAXs. An Ethernet lod area network connects 125 terminals of 60 to 70 personal computers to the

While recesors

ndro says be tries to spot places in

ach investments in MIS can be made but says be is wary of getting carried away. A few years ago, to speed financial reporting. Dandro sent word to all units

"We try to find ways to leverage our pow-er against vendors," Dandro says. Carrying the principle a step further, Dandro has joined with other firms in a

sortium called American Business Net-work in Lindhurst, N.J. The limited part-nership has the buying power of 40 major

image with the timea and in brought his leveraging skills to burt from the MIS director a position to forg-Warner Co. in Chicago. He joined hart after his predocusor retired severar ago, At the time, there was no ming MIS problem to solve, just the

al change two years ago, transfer self from a quiet but profitable of loc company to an aggressive, oriented concern. The change or with the accession of Peter Scot inf the accounting officer's position, his man te for new growth coming straight from nhart's board of directors.

dute for new growth coming straight from Enabert's beared discretion.

One year ago, Scott stated for experience of the control of the contr

to integrate rather than convert," Dan-dron says.

In the integration process, construct,
In the integration process, construct,
In the integration of the convention of the computers.

In the integration of the conception of the construct data is every discontinuous organized, transmitted and used.

"Before, we used to have just missioned the construction of the construction of

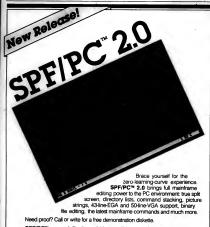
## Connolly CONTINUED FROM PAGE 57

customers. Companies can reorganize the heck out of their MIS groups and user departments, but if one system won't talk to the other, it is like having one per-son talking into a tin can while the other

than we contribute the contribute of the contrib

the respondents left significant pressure to integrate those systems.

However, 58.2% of the managers said the current shifty of computer soft-ware systems to integrate is poor, while 34.8% rate that shifty as manageable. Maybe wenders that tout the value of integration have to look first at their own offerings and place less emphasis on sell-ing managers on the value of unified sys-tems.



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# COMPUTER INDUSTRY

## INDUSTRY INSIGHT

DOD's

summer freeze

ng bad happ

It's the same for the fr

at the U.S. Department of De-nse recently imposed on the

uisition of data processing ds and services. The freeze

is something bad; a random ar-row no one expected. Depend-ing on where a wendor stands,

owever, the freeze can either

The DOD imposed the

freeze in May because its cash metlavs exceeded its budget by

rects DOD activities to defer

ordering nonessential goods and services, including DP. Specifi-cally identified for deferment are

velopment, office sutomation,

technology. Exempted from the freeze are "mission-critical"

goods and services that would af-fect the direct readiness of U.S.

The freeze is a quick fix to

the department's overspending. It does not necessarily reflect a decrease in the DOD's DP bud-

recently extended to the end of

owever, the freeze was

ed forces.

e \$4.5 billion. The freeze di-

ters, software

petting hit by

Rolm immersed in IBM culture Telecom subsidiary has swapped independence for giant's deep bockets Andrew Mohr

## ANALYSIS

SANTA CLARA, Calif. - The changes were subtle but signifi-cant when much of the authority

over IBM's Rolm Systems oper-ations was transferred into the hands of IBM executives. As part of IBM's move to streamline its own operations, the parent reorganized the man-

Aristotle once said that luck is the man standing next to you an arrow. It all

BY KATHY CHIN LEONG

ufacturing arm of its Rolm sub-sidiary. Rolm lost its divisional status and is now known simply as Rolm Systems. The changes underscore IBM's plan to bring ry under its rule.

IBM acquired Rolm in No-mber 1984 and had then romised that Rolm would main-

tam its entrepreneurial spirit. However, several veteran Rolm

tered independence, has been replaced by bureaucracy.

"This hast manufacturing move was expected," one staff engineer said. "The Rolm name will probably disappear within a year. I keep seeing IBM signs hering put up all over the companing put up all over the companies of the co ing Rolm's on most products. But the latest change has not iken the once in

pany. "We are getting used by now," the engineer said.

The technical talent pool is still there, he sided, "sait is a very monorised latest pool to cold more a most and tale to be a more than the said to the more a most as it is levered under the most as the deep potent of IBMA. The most as the deep potent of IBMA is a lever the most as the deep potent of IBMA is a lever the most as the deep potent of IBMA is a lever the most as the deep potent of IBMA is a lever the most as the m

employees to go through Continued on page

## Those go-go software

## mergers BY NELL MARGOLIS

FORT LEE, N.J. - Let's Make a Deal continued to be the name of the game in software and ser-vices during the first six months

of this year, according to the re-cently released mid-year ADAP-SO/Broadview mergers and ac-Issued by Broadview Asso-ciates, an investment banking

firm based here, the report showed corporate comb going three ways: bigger, better

and everywhere.
"If there is any softness in this market, we're certainly not seeing it," said Broadview part-ner Gibert Mints. "What have driven mergers and continue to drive them are valid strategic decisions to position companies

with regard to new markets."
Eleven deals were consum-mated for \$100 million or more in the first six months of this year, according to Broadview — more than is all of 1097. Or all the six recording to Broadview — more than is all of 1097. Or according to Broadview — more than the six of 100 per six of 11.6 things to the six of 11.6 things of 11.6 thin

The total number of deals was up 39% from 137 in the first half of 1987 to 190 between this past January and June.

The trend toward in tionalization noted by Broadview in past reports continued apace, according to Broadview partner Charles Federman. While foreign acquirers still have the exchange rate advantage, he not-ed, U.S. companies are also showing interest in acquiring their way into worldwide mar-

One new trend noted by riew is a quickening of in Mintz attributed the jump to terest in professional nervices companies. Software products

companies still accounted for the lion's share of the action — 57% of the total number of deals — but this figure dropped from last year's 67% mid-year figure. In contrast, acquisitions of profescontrast, acquisitions of sional service firms jump 12% to 21% at this year's mid-

corporate buyers who are realiz-ing that end users want services

ed to be the favorite buy in the



to complement products and that the offer of one-stop abop-ping is a draw not to be over-loaded. Among professional ser-vives firms, those most likely to be targeted by an acquiring firm are "basic body shops with good geographical spread and strong marketing capabilities and spe-cialty shops that can offer ser-vices in areas unch as banking or brokerage," he said.

## Fibronics seeks elusive profit in fiber optics But despite the hosannas st Fibronics. Founded in 1977, at the end of fiber's ra

BY JAMES DALY

HYANNIS, Mass. - Fibronics ternational, Inc. President In Hale must sometimes feel like the first guest to arrive at the party of the century. Invita-

tions have been sent and atten-dance promised, but the fun does not start until the crowd arrives. With the emerging Fiber Dis-tributed Data Interface (FDDI) fiber-optic standard steaming toward acceptance and research firms predicting s \$3 billion fiber market by 1992, the industry's re toward fiber-optic co

om those who see a pol of gold the company expanded consider-ably through 1985. But in early 1986 it purchased Spartacus, bow, 11year-old Fibronics still canno shake one simple fact: It has not made an annual profit in five years as a public company.

1966 it purchased Spartacus, lac., a development-stage sys-tems house that siphoned off dol-lars and initiated a string of lo-ing quarters. A \$2 million loss on \$30.1 million in revenue in 1986 mounted to \$2.8 million on Winds of change
Now this is about to charge,
Hale recently assured Computerraorid. "The losses and difficuties are correctable, and we
won't have to break the laws of
accounting or science to do it."

mounted to \$2.8 million on \$36.5 million in 1987. Soon after Hale came on board in February, he began to steem the overexpansion that had helped land the firm in the fiscal deghouse. Sentior management's pay was immediately trimmed 10%. Overtime was reduced. said the president of the fiber-

cut by 51 employees to 420.

One cash absorber, however, remained ustouched. "A large amount of R&D money and talent was spent on FDDI development, but if was not money that was thrown sway," Hale said.
"We're basing a whole line of

We're coming a wrote size or products on those investments."
Certainly, Pibronics has done its share of FDDI traiblazing, its System Finex network was one of the first to implement the still-unfinished FDDI standard. unfinished FDDI standard.

Still, the company will not let its future hang by a fiber-optic throad. "In order to invest in FDDI, we we got to be profitable from other product lines," Hale said. "Our cabling systems, local-area networks and Spartacus Ever most of our revenue now."

Fibronics has also looked at overseas markets and recently signed two major deals in Europe: a million-dollar pact to provided System Finex to the Italian

vided System Fines to the Italian Egipters' system of another to install the UK's first 100M big land the UK's first 100M big land to the system of the syst

## IN BRIEF

## Shift at HP

Bewlett-Packard Co. Essecutive Vice-President and Chief Operating Offi-cer Dean O. Morton refo-cused his responsibilities solely on HP's computer business in a manager shift last week. Mo had been responsible test and measurer ex and measurement oducts as well; those actions will now report tectly to HP President in A. Young.

# Paradyne layoffs

Paradyne Corp., still struggling to regain profit-shilty, will reduce its workfwide work force by 10% through liyoffs and other measures. About 300 jobs will be eliminated at the Largo, Fis., data communications worker.

expected, On-Line tware Internation inc. amounced a hefty al, line, amounced a help's fourth-quarter loss that stripped its earnings for a free year to \$700,000, compared with \$4.9 min ins in fincal 1987. Annual revenue climbed 29%, to \$4.3.9 million. One-Line lost \$4 million in the quarter needed May 31 on sales that dropped 12% from year-sarrier levels to \$18.8 million. Year-earlier profit in the fourth quarter was \$1.7 million.

## CDC gets

For the first time since For the first time sacce surviving its fiscal crisis in 1965 and '86, Constrel Data Corp. has estab-ished a credit line with a group of U.S. banks. Bank of America is the lead bank

## Goal to buy

igned a letter of intent for he merger of Altai into ioni. Under the \$14 miln agreement, Colum-s, Obio-based Goal will y \$5.75 for each out-anding share of Dallas-

## Mohr

## FROM PAGE 61

the government's Sept. 30, 1988 fiscal year. Since the DOD's spending for supplies peaks during the fourth quarter, the freeze will hart contractors who were looking to boost sales in August and September. Most affected by the freeze

are manufacturers and resellers of plain-vanilla office automa-tion and microcomputer prod-ucts. These procurements are easy to spot and hard to justify for an exemption from the freeze. While DOD activities buying more sophisticated or specialty products — can obta waivers from the freeze, it's

harder to justify buying a few personal computer clones or 10

more copies of Lotus' 1-2-3 as mission-critical. Vendors of mainframe and

much less, as are systems inte much sess, as are systems inte-grations. These contractors gen-erally sell the bulk of their prod-uct through requests for proposals, which are flexible contract procedures that often take six months to a year to complete. Because of their long

gestation periods, it is easier to stretch out negotiations, bench-marking and contract awards until after the freeze ends. Computer services firms are

generally weathering the freez as well. It is harder to summari ly cut off a service contractor providing a needed, day-to-day service, or stop a software devel oper in the middle of a project than it is to defer buying some



more micros. Maintenance vendors are for the most part safe, since they operate under ongoing annual contracts that bridge the freeze However, since the freeze does prohibit the placement of new maintenance contracts, a maintenance vendor could be hurt for

those contracts coming up for renewal during the freeze. For most vendors, the

freeze will be at worst a dry spell, a slight dip in expected sales, if noticed at all. For others, the oese will be a lot worse, a drought. It's just a matter of where you are standing when the rapdom arrow strikes.

Mohr is a partner at the law firm of Co-hen & White in Washington, D.C., spe-cializing in the federal procurement of DP goods and services.

Rolm FROM PAGE 61

changes, but the h changes, but the handwriting has been on the wall for a long time."

The manufacturing moves flow the March 1987 absorp-tion of the entire Rolm sales force into the IBM sales group. Rolm insiders said the next to be merged will probably be marketing and finance, completing the integration of the company into the IBM fold. Under the new structure, in-stead of veneral contracture, instead of reporting to Rolm head-quarters in Santa Clara, the Colquarters in Santa Clera, the Coi-orado Springs manufacturing site for Relm computerized branch exchange digital switch cards will report directly to the BM Systems Technology Divi-sion in Charlotte, N.C.

The Colorado Springs manufactueing for Reciwood, a small factueing for Reciwood, a small pates in San Jaco, Calif. Also moving to the San Jaco plant will be a small pate in San Jaco, Calif. Also moving to the San Jaco plant will workers who would sit the Robs Inchigs in Steadard Lura. We report to the Blad Barty Systems Division, but development to the Robs Inchigs in San Jaco plant in the Robs Inchigs in San Jaco plant in the Robs Inchigated San Jaco plant in the Robs Inching in San Jaco plant in Company and San Company

## Lives and times

Roim Corp., founded in 1969, was one of the suc-cess stories of Silicon Val-ley as the malar of the first digital private branch ex-change. The letters in the company monitor are the first initials of the last names of the four

Today, two founder remain with Rolm whithe other two are pursuit their own interests.

Gene Richeson: Tr Gene Richeson: The Rin it be equation, Riche-son is a full-time volunteer and cofounder of the non-profit nationwide agency Beyond War. The group, which believes war is obso-lete, is described as an edu-

who departed in 1996, a personal investor and be teaching undergradus classes in business in agement at the Universi of California at Berkeley

Jr.: Loewenstern serv as Rolm's vice-presi for administration and as Rolm's va...
for administration and per-sonnel. Today, be is em-ployed at what is now the

Maxi Robert Maxfield: Maxfield: Maxfield is the sole co-founder who still works at Rolm on a full-time basis. As director of Rolm Sys-tems, be advises the com-pany on technical insues. KATHY CHIN LEONG





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# COMPUTER CAREERS

## C programmers need not apply Demand for the language hot in software development, cooler in MIS



Never before have we had such a clearly dominant language in the development area," says Robert Kleven, president of Robert Kleven & Co., a Lexing-ton, Mass-based high-technol-

Corporate MIS departments, vever, have not developed a illur hunger for C language ing that the demand for C pro-prammers in the typical corpo-rate MIS department is aim to sone. The dominant language is

Beyond the borders Software vendors cannot find enough C programmers to fill their needs and have began to search worldwide, says Lee Sil-ver, president of L. A. Silver As-

sociates, an international hightechnology recruiting firm based in Framingham, Mass. Silver is heading to London in an effort to find 140 C/Unix programmers for a major vendor. "I won't be able to find all of them offshore. But Silver says he does not

expect the insatiable demand for C programmers to last long.
"It's a temporary thing. The
schools are pushing out C programmers. The companies mselves are gearing up. I

ink the shortage will last two three years," he says. Gary Weischselbaum, manager of software recruiting at New Boston Associates in Woburn, m., is advertising for C pro mmers for his software de-

loper clients. But while Weischselbaum is but write restaurant beating the bushes for C experts, his colleague, Dennis Travers, New Boston's manager of MIS recruitment, finds demand for C programmers within MIS virtually nonexistent. "Every now and then we get a request for C. -Maybe somebody bought a super PC and wants to put something with Unix on it," Travers says. He cannot recall the last time he placed a C programmer in MIS. Like Kleven, Travers contin-

ues to find the demand from MIS to be primarily for Cobol and

might also come in MIS shops that are beavy users of PCs or that operate a major PC informa-

tion center.

Unlike a product development organization, an MIS department is unlikely to need a highly skilled C programmer obort notice, Kleven says. If an MIS department does need a C tributed and end-user computing, he says be anticipates inprogrammer, it has several op-There may be modest oppors that are less costly than

Y FEELING is that [the C language] is a very narrow area. When I advise people, I warn them not to get into a hox

MANAGEMENT DIMENSIONS

tunities for C programmers within ancillary MIS activities. "Take a large bank," Kleven says. "It needs an army of Cobol programmers, but then it mig need a few programmers to he specialists in office automation, transaction transaction processing or networking." These applica-tions could be moved onto mini and microcomputers and require the support of some C language

Kleven also suggests that if Unix-based workstations be-come established in the data processing environment, users might want their own C programmers for maintenance. Opportunities for C programme

programmers, he says.

competing for them with prod-uct development companies. "An MIS department would probably try to retrain some-body internally or pick up an eu-try-level C programmer from

try-level C programmer from college," he suggests. Other computer recruitment professionals share Silver's view that the demand for C program-mers will he a short-lived phemenon even in the development world, and C programmers risk being left behind when the ndustry moves onto the next hot anguage. "My feeling is that [C language] is a very narrow area. When I advise people, I warn them not to get into a box," says John Erdlen, president of Man-

Career counselor.
One problem of program who concentrate in a language that is too specialized or have a skill that is only in demand for a short time is that they price themselves out of the market, Erdlen warns. "A few entrepre-neurial companies may pay big money for a C programmer now but what's he going to do next?

Generalists preferred The preferred career path for a programmer who wants to move up in an organization is to master a variety of skills and languages while keeping current with in-dustry trends, Erdlen says. The

IOHN ERDI EN career path is much better for a programmer with five years of general experience and only six months of C language program-ming than for someone who has only three years of C language work, he says.

Even in the product develment community, top C pro-grammers are expected to bring strong product development ex-perience with them along with

their programming skills.

For example, a C programmer with five years of varied development experience can earn as much as \$50,000 a year but a person who only has program-ming skills earns much less. "If you are just a programmer, you are much more junior and you have less marketability," Weischselbaum advises.

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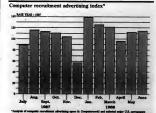
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# "...We're trying to reach MIS and data communications professionals. And Computerworld effectively delivers both."

— Cesar Namba Imperial Corporation of America

ear Namba is Assistant Vice Presiden for MIS Recruitment at Imperal Conporation of America (ICA) in San Diego, California ICA is a financial services organization than has savings and mortgage institutions in 30 states. Profer Cesse, filling important MIS DP poceedly, ICA embated upon a change in part of its corporate technology, and that means that Cesar had to go to work finding qualified personnel. And for reaching the

"Our goal in recruitment advertising is to do several thing: Naturally, we went to fill tocam; not positions, and if we do it right away, that's great. But there's much more to it. We want our ads to create awareness of ICA as a company that bires MIX/DP professionals and we want to make contacts for future positions.

"Computerworld addresses all that we want our advertising to accomplish. First of all, it's such a well-read publication; everyone I deal with in the world of MIS reads it. Computerworld is our top choice for

reaching qualified candidates — in fact, we initially felt it would work even better for us than local newspapers.

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Computerworld is the right vehicle for our target audience.

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(DDA), based in Chelses, Mich. The CDLA's Code of Profes

sional Conduct and Practices does not delve into standards or

contains necessary safeguards concerning reliability and main-

Buyers of used IBM equip-ent can get help here from the

1956 consent decree that

opened up the computer market to competition, including compe-

tition from dealers of used equip-ment. Provisions of the decree

# Used equipment: Caveat emptor

Protecting yourself in areas of maintenance, reliability especially crucial

Roy C. Davis, essentive director of the National Association of Computer Dealers (NACD), knows about the hazards of buying used computer peripherals. Take one of his line printers—please. "I could probably sell it for top dollar," Davis says, "but I know it will fail after 30 min-

utes."
Reliability is a major concern
in purchasing used computer
equipment, and the question is
particularly germane in the case
of peripherals. If anything or perspoeras. If sayting breaks in a system, chances are it will be a peripheral that in-cludes relays, drive motors, switches and other electrome-chanical components as well as solid-state income.

solid-state insards.

It is not likely, however, that
the person responsible for buying computer equipment can tell
if a printer, disk drive or other
electromerchanical perioderal lectromechanical peripheral nil operate properly, even for nil an hour. Unlike a used car, at the equipment is in good

dition or ready for the junk.

Computer Dealers, also located in Washington, D.C., and the Fortunately, making a safe Digital Dealers Association Fortunately, making a safe

ase is a relatively simple r. "It largely depends on matter. "It largely depends on the dealer and the agreement for purchase," says Lee Kroon, edi-tor in chief at Computer Eco-nomics, Inc. in Carlsbad, Calif., publisher of a series of newsletters on the economics of running a data center. "You have to get a eputable dealer who belongs to

an association with ethical stan dards." Kroon says. Let's make a deal One of the largest such associa-tions is the Computer Dealers and Lessors Association (CDLA) sed in Washington, D.C., whose members account for out 80% of the market for

used and lessed equipment, ac-cording to Ned Livornese, the group's assistant executive di-rector. "We have a code of ethics in the CDLA that our members must adhere to." he says. There are other similar organi

zations as well." require IBM to provide certificates of maintainability on equip clude the American Society of

ment that IBM has maintained. The certificate, known as a Maintenance Acceptability Quadication (AAQ) letter, is to be available for issue with the equipment when it is sold.

Other computer makers, such as Digital Equipment Corp, Unioya Corp, and AT&T, use sirular instruments to ensure the instruments to ensure the control of the computer of the c lar instruments to ensure the buyer that the equipment will be kept running under a qualified maintenance plan. In the event that equ

reliability. It does call on mem-bers to "follow through and com-plete any agreement made ver-bally or otherwise to any CDLA has not been maintained by its vendor, the vendor may charge a new owner to inspect the equip-ment — and perhaps do repairs — before be will issue an MAQ ber, prospect or client" and to honor agreements as expedi usly as possible.
Doing business with a trade or - equivalent certificate. Charges for the the inspection and any necessary repairs must be figured into the cost of a pur-

association member, therefore, may be only one step toward assuring that used equipment is re-liable. Buyers must see to it that dealer is committed to uphold

Coming to terms
There are alternatives to securing transfer of the manufacturer's maintenance, such as arranging for maintenance by
another party, the CDLA's Livornese notes. Normese notes.

Either way, he says, the eligibility for maintenance should be spelled out in the purchase agreement. "You need a guarantee that the equipment will be accepted for maintenance by somebody. We strongly advo-

cate that our members provide that. The buyer should ask for it in the contract.

er might be willing to pay a lower price for equipment not covered ce certificate if he has his own in-house mainte-nance staff. The need for inhouse maintenance, too, should be investigated in advance and be investigated in advance and taken into account in the pur-chase contract — before the buyer finds that the used equip-ment that was going to save him a lot of money does nothing but cost maintenance dollars.

An assurance of maintenance does not mean the equipment will run properly when it is turned on, but it does help ensure that the equipment will be fixed if it does not work.

The buyer should work out other potential glitches that he might hold the dealer directly accountable for, such as a failure of the equipment to work at all. Again, such warranty issues Again, such warranty issues should be taken into account dur-ing negotiations. "Get that all worked out up front and in writ-ing," the NACD's Davis says. "You need the opportunity to

data center manager based in Northcort

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— Bob Stevenson Presiden CIBEI

onsulting comes first at CIBER—and that's even reflected in their name. CIBER stands for Consultants in Business Engineering and Research, a national company that's been providing top consulting services to the information processing departments of business and government clients since

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ly seeing a bigb return on our in vestment with Computerworld.

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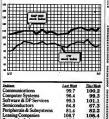
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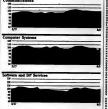
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Aug. 29	D82 Market	Aug. 12
Sept. 19	Hardware Roundup: Large, Medium Scale and	-
Sept. 26	Special Purpose Systems Hardware Roundup:	Sept. 2
	Small Scale Systems	Sept. 9
Oct. 3	Hardware Roundup: Personal Computers and Workstations	Sept. 16
Oct. 17	AI/Expert Systems	Sept. 10 Sept. 30
Oct. 31	Unix	Oct. 14
Nov. 14	TRA	Oct. 28
Dec. 5	LAN's	Nov. 18
Dec. 19	IBM-Compatible PCs/PS2	
	Market Products/Monitors	Dec. 2

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# STOCK TRADING INDEX



Indexes.	Last Week	This Wines
Communications	99.7	100.2
Computer Systems	96.4	99.3
Software & DP Services	99.3	101.1
Semiconductors	64.8	67.3
Peripherals & Subsystems	81.4	82.2
Leasing Companies	108.7	106.4
Composite Index	86.9	88.0
S&P 500 Index	110.4	115.0











# Computerworld Stock Trading Summary









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To and fro Early gains fade away as mmer doldrums hit market

Section: 

## Hackers FROM PAGE 1

available for not conducting an investigation. "High ranking (U.S. Department of Justice) offi-cers said that it was probably just a kid, and there would be no

a ind, and there would he no prosecution even if we did find him," he said.

The Justice Department and the Federal Bureau of Investiga-tion would not comment on the

case.

"I wrote an autopsy of the case." Christy said. "I call it an autopsy because the victim died and the murderer got his gun

Computer security experts and computer law specialists say that the laws involving theft of data or simply breaking into a system and browsing data need to be more clearly defined.

More than low But they all agree that it is not just an issue of law. In fact, Chris-ty listed a dozen laws that the ncies knew were being vio-d. 'The best laws in the world are non access problem," said Peter Neumann, a computer security consultant at SRI International in Menlo Park, Calif.

"Yon need laws, ethics, value, a society that cares and better computer systems," Neumann and.

"This person was targeting world are not going to do any good. It is not a legal problem,"

"This person was targeting military organisations and look-ing for key words you'd associate

rests were not [limited to] aying games," Stoll said. Stoll and dozens of volunteers onitored Hess' attempts to enter about 450 sensitive computers, using computer network connections at Lawrence Berke aboratory — primarily Ad-ed Research Projects Agen-Network, Milnet and Network, Muinet and et. According to Stoll, "successfully" broke into

# Apple-DEC

frem user complaints about patible implementations, ficial access and less-than-

Optimistic outlook Although the DEC/Apple alli-ance has been greeted skeptical-ly by the industry, Roy Davis, an by by the industry, Koy Davis, an operations manager at Hughes Aircraft Co., in Long Beach, Callf., said he is optimistic. "I think it's very important to a company like ours that Apple and DEC cooperate and provide the basic infrastructure in a useful size." ful way. The sooner they get it together, the better for the in-dustry." Davis said. more than 30 of those, mostly military and military research fa-

"He got into [one-third] of the got use to tone-third of those systems as a system man-ager," Stoll said. As a system manager, Hess could read, write, erase or modify any of the files on the system. Instead of altering information, he printed out as much information as be



Stoll said Hess used well-known bugs, like one in the Free Software Foundation's Gnuacs text editor that allows a uner to change file ownership and move files. Through this hole, Stoll said, the intruder was able to masquerade as a utility periodically run by the system. Stoll traced the hacker's calls

through a convoluted web of telephone lines and packet-switched networks, finally suc-

switched networks, finally asc-ceeding in planting a sensor that would alleft him when the invad-er loggedon to a target system. Stoll then beited a trap by cre-ating false directories be thought Heas would take time to perac, one of which be named "SDI Network." Hess "spent two hours copying this information into his home commuter. In two into his home computer. In two hours, we were able to finish the trace, and we were able to finish the trace, and we were able to deter-mine precisely who he was," Stoll said.

Davis' installation includes about 7,000 Macintoshes and reds of VAXs. Davis said he is particularly interested in the ability to move graphics and text between sys-tems as well as being able to manage all his Appletalk net-

In the announcement this In the announcement thin week, analysis said the companies will present the following:

• Appletals for YMS, which will provide Mac programmers with a Max interface to VAX communication without having to learn DEC system peculiarities. Companies using the Macintook as a VAX front end have previously had to develop their own programs to facilitate that configuration.

Specifications that will allow Appletalk File Protocol (AFP)-

Christy said communications between the agencies — which by this time also included the U.S by this time also included the U.S Department of Energy, Law-rence Berkeley Laboratory's funding agency; the National Computer Security Center; and all countries involved in the trace — "was a nightmare. We didn't

deal with it real well," he said. "The agencies are very purochial; they wouldn't share infor-mation with each other," he add-

The U.S. enforcement agen-cies turned the case over to West German authorities, who, Christy said, never informed U.S. offi-cials why they seized Hess' equipment and subsequently re-turned it. "The (West) German defense attorney kept the gov-erament from looking at the evince which was seized. No one sows why," Christy said. As far as U.S. authorities know, the case was terminated in Anril.

A lesson learned "Hopefully, we learned from this," Christy said. "We put together a network of people in the FBI who are interested in it, but they're not in high places. Other agencies, like the Department of

stice, are just starting to unnetwork would be helpful, the law is still vague because it in-sists that "intent to defraud" the government be proved.

Another reason that laws and enforcement agencies cannot he depended on it the nature of hacking itself. "There are lots of patterns where people come in and do something nasty and get right out again," Neumann said. "You'd have a hell of a time getting warrants and subpoenss."

Until laws, enforcement and

social policy catch up with the mation systems beware of security holes and train employees to he aware of their role in making the systems secure.

based applications to utilize a VAX system as a network serv-

Micristods station.

\*\*Distributed database secres via an internally developed DEC via an internally developed DEC via an internally developed DEC via an internal via an inte Server on a VAX VMS system allows the user to make use of larger VAX disk resources," the vendors claimed in a program summary distributed to analysts. They also said the AFP Server They also said the AFP Server will support VMS security mech-anisms and provide a growth path from a Mac-based server to a VMS-based server. • VT terminal (Models 100-300)

"Late" is a word Ash

rat said.

## **Dbase IV watchers:** Schedule looks tough

BY STEPHEN JONES

TORRANCE, Calif. - Ashton TORRANCE, Calif. — Ashton-Tate Corp. is fewreitably sudating its Dosse IV bets code, eften on a daily basis, but some users of early versions of the critical product said Dosse IV has little chance of meeting its already-de-layed September release date. Ashton-Tate said it has devel-oped a total of 255 in-house ver-sions of Dosse IV, hammering

sions of Dbase IV, hammering out bugs and trying to whittle down code to reduce memory re-

A company spokesman claimed that the latest bets ver-sion, called 2.55, is the first fully functional example of Dhase IV, with smooth integration across with smooth integration across all components of the program. He minitained that the applica-tion will ship by the Sep J. of deadline. The company pros-ined strendees of a developers' conference it is sponsoring in early September that they all receive Dhase IV beta code. However, analysts and others who have seen recent releases of the product reported system

who have seen recent releases of the product reported system crashes and a rough implementation of all-important SQL capabilities. One more said Austron-Tate's drive to squeeze the bulkey program into 6400K bytes of memory has resulted in features such as user-defined functions being extension of Disset 17 of the property of the state of the

sion, they're going to release something." Green said. "They've put a lot of pressure on themselves to get it out the

would like to purge from its cor-porate lexicon. Done IV has al-ready missed a July ship date.

hungry users and a skeptical Wall Street. One database expert claimed that Dbase IV is being slowed be-cause Ashton-Tate developers

will not leave well enough alone Ashton-Tate seems to be spend-ing too much time on the fines ing too much time on the finer points of implementing featuring such as interactive editing and browsing of files, said David Kal-man, editor-in-chief of Data Based Advisor, a database mag-azine in San Diego.

Test and test again
"Every time they decide to do
something new, they extend the
testing cycle and an a result, they
extend the shipping date." Kalman said. Kalman, who put man said. Kalman, who put Dhase IV bets code through a regimen of tests, noted that a de-layed ship date is less troubling m releasing a problematic appacation.

Adam Green, a Dosse author and lecturer, said Ashton-Tate will have to ship some form of Dosse IV by the end of next

month to get the product in cus-tomers' hands after two years without a Dosse upgrade. Whether it's prerelea

door."

Green said be is using bets.

Version 2.13 because later releases are missing important
pieces, such as memo fields and
user-defined functions, because of memory restraints. Gre mid that although his studes like the new features of Dia IV, they are disappointed wi its speed and performance.

interchange between Appletali and Decnet. Apple will provide file ex-

change translators to key Mac file formats, and DEC will pro-vide VAX-based conversion tools for VAX document for-

mats.

A gateway between Appletalis and Decnet, supporting the first four layers of the Open Systems Interconnect model. DEC will develop the actual gateway, providing protocol specifications, while Apple will develop the access routines and publish a blac. And the continues and publish a blac and the continues and substantial protocol specifications and publish a blac and the continues and the contin

Also, Apple and DEC ha committed to providing network management that would enable systems administrators on both networks to look into each envi-

emulation, which will give Apple-talk-based Macintoshes access to VAX-based terminal services and the ability to use DEC Windows, the mini-maker's imple-mentation of the X Windows

## 386I shipments stalled

Sun clouded by DRAM chip shortage

BY JULIE PITTA

MOUNTAIN VIEW, Calif. -More than three months after its introduction, Sun Microsystems, Inc.'s workstation tar-geted at bridging the MS-DOS and Unix worlds has yet to ship

OU HAVE TO think of this product as a workstation rather than a PC."

> BRADSMITH DATACHEST

volume to end uters.
The 3861, which can run Mi-osoft Corp. MS-DOS sessions der Unix by using a Phoenix chnologies Ltd. software coprocessor, has been hampered by a shortage of components.

access memory chips has slowed shipments, according to sources close to the company.

cose to the company.

Most shipments of 3661 workstations have gone to OEMs and third-party software developers, few of which are from the MS-DOS world. Sun officials said they are working to get the system to end users for heat seeding.

get the system to end users live the tracting.

The 36th represents that first.

The 36th represents that first.

The 36th represents that first workstation all the 10 mm MS50th Sam efficials and they hope on the 10 mm MS50th Sam efficials and they hope on the 10 mm MS50th Sam efficials and they hope on the 10 mm MS50th Sam efficials and they hope on the 10 mm MS50th Sam efficials and they hope on the 10 mm MS50th Area of the 10 mm MS5

Hourty said be hopes to cre-ste a network of 3861 worksta-tions — using Sun's Motorois,

Inc.-based system as a file server
— for traders.
"Sun is not all roses," Hourty

said. "They are seriously lacking in window tool kits." Brad Smith, an industry ana-lyst at Dataquest, Inc., said the 3861 will find a niche with work-

tween Unix and DOS systems.
"You have to think of this product as a workstation rather than a PC," be said. "There's hardly a workstation user that doesn't use both DOS and Unix."

## Basking in that billion-dollar glow

un topped the \$1 billion namail revenue mark as its explosive growth continued in factal 1866. Loss of the Silicon Waley workstaten vendors stands in start Con-trars to the grim mode als its 24st Const compet-ior. Apolio Computer, Inc. One month ago, the contract of the contract of the con-tract to the grim mode of the silicon for its venes \$5 million and \$8 million for its or upcuter unded july 2. Apolio's stock plumpit, and to prevident and charle comment, office, and the grim was its wint a class-action investigation. The contract of the contract of the contract of \$200 more contract an embelophicitical shorts of

ary components to become a billion Analysts had feared that the co

the scarcity of dynamic random-access ment (DRAM) parts.

For the fiscal year ended June 30, Sun pot net income of \$66.4 million, or \$1.79 per sh on revenue of \$1.05 hillion. In comparison, company reported net income of \$36.3 mill

or \$1.11 per share, on revenue of \$537.5 mil-lion for fiscal 1987. Sun a results in fiscal '88 represent a 96% in-crease in revenue and an 83% increase in profits

er the prior year.

over the prior year.

Despite these techter results, Sun officials and they fed the impact of the DRAM international they fed the impact of the DRAM international they fed the impact of the DRAM part of the DRA

UII IE PITTA

timates from IDC Europa Ltd. in London, IBM increased its total

# Micro Channel

Channel compatible, has now said it may hold off delivery of that product until next year.
"We have been experiencing little to no demand for the Micro Channel." Dell spokesman John Ellett said. He added that de-

Close but no cigar

and for AT-style computers is

mand for AT-style componential very strong.
Tandy Corp. has made the
Micro Channel plonge and is curcutly slapping its Tandy 5000
routy slapping its Tandy 5000
ring to Rd lage, director of martext planning. "There is some demand" for the compositible, luge
said, but nothing like that for
4T-style bus products. Most of

Non-MCA dominates
Framinghen, Mass., market research firm Informational Data
Corp. (IDC) has predicted that
1.4 million McA-based PS/2s
1.4 million McA-based PS/2s
5. million non-MCA units.
For Dennis Yellina, a systems
analyst at Odgette Palmoirre Co.
in Jeffersonville, Ind., the Micro
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Conanel in one a priserity conmarky AT-class mackines.
Greg Clina, a sensior analyst at ero Channel Architecture machines are expected to rem all portion of total IBM and compatible micros skitted 5.7 Non-MCA machines 6

Greg Cline, a senior analyst at The Yankee Group in Boston, said that for most users, the ad-vantages of the Micro Channel

the 5000 MC sales are going to companies that believe they will need it within the next two years and to Tandy competitors, Juge

e simply not clear-cut yet.
At the Providence Journal Co.
Providence, R.L. systems enneer Peter Scheidler said his apany's stance is typically to

stick with IBM and that it is buy

stick with 1504 and that it is only-ing mostly PS/2s.

"The joy of buying IBM is that the stuff is well put togeth-er," he said, "but you're buying in to the future of the Micro Chennel, which may or may not

have a future."
Robert Mett, a senior technical analyst at Whirlpool Corp. in
Beston Harbor, Mich., and that
while his firm in buying some
PS/2s, "we shaye causton that
this is not a compatible machaine." The company also buys
AT-class machines from Zenith
Data Systems.
Surprisingly, in Europe,
where IBM is not as dominant a
force as in the U.S., the PS/2s
are doine usile ware doine.

are doing quite well.

According to preliminary es-

Londou, BM increased its total personal computer sales in Europe last year by 38% to 566,000 units. Of those, half were PS/2k; half of those were non-MCA based Model 30x. For 1988, according to IDC Europa, the Model 30 continues to self well in Europe, but Model 50 alea have slipped.

"In large accounts in most content of the person of "In large accounts in most countries, the PS/2 will be bought as an extension of exist-ing computerization plans," said Gordon Curran, senior consul-tant at Intelligent Electronics SA, a Dataquest, Inc. affiliate in

Amiel Kornel, Paris bureau chief of the IDG News Serioce, contributed to this report.

## CORRECTIONS

planned Unix operating system (CW, July 11) is expected to be available in the fall of 1989.

The June 6 Spotlight chart on CASE products should have identified inspector from Lan-guage Technology, Inc. as a IBM mainframe product that uses McCabe's Metrics and ad-

utes MCLARE a MELTICA and softeness the maintenance phase of the software life cycle for Co-bol 68, Cobol 74, Cobol II and IBM's IMS code through the production of annotated listing and portfolio scatter graphs.

In "IBM claims Netview no CPU bog" [CW, July 18], it took a host running Netview Release 2 ap-proximately 2,000 CPU seconds

to process 30,000 logical unit sessions: 1,600 seconds to pro-cess logon sessions and 4,300 seconds to process session awareness data.

In an article titled "Counting the ways CASE helps," which ap-peared in the June 6 Spotlight section, Herrales, Inc. in Wi-mington, Del., was incorrectly identified as Hercales Computer Technology, Inc.

Unisys is one of the seven fo ing members of the OSI/ Network Management Forum (CW, Aug. 1).

In a June 20 Spotlight chart, the price for Information Technol-ogies, Inc.'s Linkup 3270 Coax 10-Net Gatestation should have

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## **TRENDS**

# Third-generation languages

technology is the wide ware platform, according

n many cases, the predomi-ng language on a certain s of machines reflects the munity in which a line of mastancy in wince a mire of inst-es first became well estab-d. For instance, Cobol pre-nates at 81% of IBM frame sites, reflecting its ness as a general-purpose as language and the main-a dominance as a general-

purpose business processor.

In contrast, Cobol is used at only 14% of Digital Equipment Corp. VAX sites. The VAX and its predecessor, the PDP se got their start in the scien

got their start in the scientific and engineering community, in which the language of choice has always been Fortran. In a similar vein, IBM's mid-range machines have always been popular with the smallbusiness community and fre-quently function as the central processor for a quasi-indepenorganisations overwhelmingly prefer the easy-to-learn RPG-II ad III languages, according to computer Intelligence. As a result, RPG-II and III are

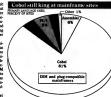
Computed intelligence.

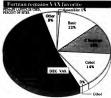
Controlled intelligence and Illiams the primary languages and Illiams the primary languages and 12% of Bild Systems 40.2% of Bild

13% of the sites.

DEC's proprietary language,
Dibol, a Cobol look-ailie, has enjoyed slender success on VAXs,
similar to IBM's proprietary language, PL/I. Dibol is the primary
language at only 3% of VXX
sites, and PL/I is used at 5% of
mainframe sites. These differences could be further enhanced
when considering nersonal conwhen considering personal com-puter languages. Basic, C and Pascal would play larger roles on that platform than on other ma

CHARLESBABCOCK







Down on the fast farm. Lotus continues to steam the pound of 1-32 Malana 3.0 to square it into the crusped property of 1-32 Malana 3.0 to square it into the crusped control of 1-32 Malana 3.0 to square it into the crusped control of 1-32 Malana 3.0 to square into the sq

n reaction. The five-vendor "critical m rtin, president of Los Altos, Calif.-based tom International, said in mid-July would i ach a vendor-neutral, independent associa

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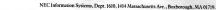
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